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BOARD OF NATURAL RESOURCES
COLSTRIP HEARINGS

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WEDNESDAY, MARCH 24, 1976

The hearing reconvened at 9:20 A.M. on Wednesday, March 24, 1976, in the Chambers of the Montana House of Representatives, State Capitol, Helena, Montana.

The Honorable Carl M. Davis, Hearings Examiner, presided over the proceedings.

APPEARANCES:

Applicants:

John L. Peterson, Esq.
John Ross, Esq.

Department of Natural Resources and Conservation:

Arden E. Shenker, Esq.
William G. Sheridan, Esq.
Donald MacIntyre, Esq.

The following proceedings were had:

HEARINGS EXAMINER: Let's proceed.

DR. MERRILL R. PACK, called as a rebuttal witness by the Applicants, having been first duly sworn upon his oath, both as to his written direct testimony and as to the oral testimony to follow, was examined and testified as follows:

MR. PETERSON: At this time, Mr. Davis, we'll present the testimony of Dr. Merrill R. Pack and move for Exhibit 276 to be introduced.

(THE WRITTEN DIRECT TESTIMONY OF DR. MERRILL R. PACK WAS DIRECTED TO BE INSERTED AT THIS POINT.)

TESTIMONY OF

Dr. Merrill R. Pack

My name is Dr. Merrill Pack, of S.E. 330 Camino, Pullman, Washington. I am presently employed in the Air Pollution Research Section of Washington State University.

I hold a Bachelor of Science Degree from Brigham Young University (1949) in Agronomy and Chemistry. I received a Ph.D. in 1952 from Rutgers University in Soils and Plant Physiology, which is the science of biochemical and physical function of plants.

From 1952 to 1956 I was Assistant Professor of Agronomy at New Mexico State University. From 1956 to 1963, I was Plant Physiologist at U.S. Steel Corporation, Provo, Utah, in research on effects of air pollution on vegetation, dealing primarily with fluoride problems but including also ozone sulphur dioxide,oxides of nitrogen and PAN (peroxyacetyl nitrate). I have published numerous articles in air pollution journals dealing with fluoride and ozone injury to plants.

In 1963, I became associated with the Research Section on Air Pollution at Washington State University. My work has consisted primarily on fluoride effects on vegetation and also includes field work on effects of emissions from power plants.

The Air Pollution Research Division of Washington State University under contract with Pacific Power and Light began a baseline data research program in 1969 to gather baseline data before the construction of a 1400 megawatt thermal power plant to be located about 5 miles from Centrailia, Washington. This program was initiated at the request of the predecessor to the Department of Ecology of the State of Washington requiring the owners of the plant to monitor stack emissions, ambient air quality and vegetation in the area by an independent group. The work included monitoring sulfur dioxide and particulate emissions, with continuous analizers, a network of sulfation plates, high volume particulate samplers and dustfall jars.

On September 10 and 11, 1969, the initial vegetation survey was made by Dr. Folke Johnson, Plant Pathologist, and Dr. Merrill R. Pack, Associate Plant Physiologist. Nineteen locations were selected on the basis of the variety of vegetation present and distance and direction from the construction site of the coal-fired power-generating plant. Distances ranged up to 8 miles from the plant site.

A general evaluation was made of cultural practices, disease, and physiological problems with particular emphasis on leaf symptoms that might be confused with or complicate the diagnosis of air pollution injury.

Typical instances of neglect, inadequate nutrition, and lack of disease and insect control were found at several locations. In contrast, other properties showed excellent care. The vegetation showed effects of drouth wherever it had not been irrigated, especially on shallow, rocky soils. Leaves of some plants were beginning to develop fall coloration, drop, or otherwise show evidence of senescende (old age). This had probably been hastened in some cases by the drouth conditions.

The 19 sites were expanded to 22 in 1970. The plant went on line in September, 1971, and has operated at about 50% capacity since that time (primarily due to faulty electrostatic precipitator installation until 1974). The annual emissions of Sulfur Dioxide are at least 32850 tons per year (no scrubbers with .75 to 85% coal).

The plant site is located in the area marked on Exhibit #276. It is a mine mouth generation station located in a small valley surrounded by densely forested hills, elevation 800 to 1000 feet, within ten (10) miles of the plant. The area has intervening valley and has some agricultural activity of livestock and dairy farming, a few small Christmas tree growers (Scotch Pine, Douglas Fir, Grand Fir) and limited grain production. Plant stack heights are 470 feet.

Vegetation surveys have been made on an annual basis, two surveys each growing season from 1972 through 1974 and one in 1975.

On August 20-21, 1975, vegetation was surveyed in the area surrounding the Centrailia coal-fired electricity-generating plant. Observations were made in the vicinity of the cooling towers, at a location 4 miles east of the power plant, and at 22 previously established locations at distances of one to eight miles from the power plant.' The survey was conducted by Dr. Folke Johnson, Plant Pathologist, and Dr. Merrill R. Pack, Plant Physiologist.

Vegetation at the various locations was examined for evidence of air pollution injury. Most of the locations surveyed were at residences where there was a wide variety of orchard, garden, and ornamental plants with a broad range of sensitivity to various air pollutants. Adjoining native vegetation was examined where available, and native vegetation predominated at a few locations.

No symptoms of sulfur dioxide injury of either the acute or chronic types were found on the vegetation at any of the survey locations. Since it has been claimed that acid rain, caused by sulfur dioxide and other acidic substances in the atmosphere, produces a "short-long needle" syndrome and basal needle necrosis on pines, particular attention was given to pine trees growing in the area to determine if such abnormalities were present. Neither the "short-long needle" syndrome nor basal needle necrosis was found on pine trees growing in the survey area.

A trace of leaf tip dieback of the type caused by fluoride was found on gladioli growing at several of the survey locations. Since a trace of such injury is common in most urban areas and the distribution of the injury was mostly unrelated to location with respect to the power plant, it appears likely that factors other than power plant emissions contributed to development of much of it. However, more dieback (up to 2 inches on some leaves) was found on gladioli at location 2, one mile east of the power plant, than anywhere else. It is to be noted that gladioli is one of the most sensitive species to fluorides. Thus fluoride emissions from the power plant undoubtedly caused detectable elevation of atmospheric fluoride levels at some locations.

However, the increase in background levels of fluoride by the plant result in no significant injury to any species.

HEARINGS EXAMINER: Very well, Mr. Sheridan.

EXAMINATION OF DR. MERRILL R. PACK

Rebuttal, cross, by Department of Natural Resources and Conservation

By Mr. Sheridan:

Q Dr. Pack, have you ever been to Colstrip?

A No, I haven't.

Q When were you first contacted by the Montana Power Company to come here and testify?

A In February of 1974.

Q February of 1975?

A 1975, pardon me.

Q And since February of 1975, you've never gone to view the site of the generating station at Colstrip?

A No.

Q I see on your statement that you were employed by U. S. Steel Company in Provo, Utah from 1956 to 1963. In that employment, were you primarily involved in the adjustment of claims against the U. S. Steel Corporation?

A No, I was primarily involved in research.

Q Have you been a consultant to the Puget Sound Power and Light Company?

A No, I haven't.

Q You state on page 3 of your statement the annual emissions of sulfur dioxide are at least 32,850 tons per year at the Centralia facility, is that correct?

A Yes.

Q Who gave you those figures?

A Well, that was an estimate that I made on the basis of limited operations levels that I had access to.

Q When did you make that estimate?

A Oh, about two weeks ago.

Q Did you go through the plant?

A No, I didn't.

Q Are you familiar with the size of the boiler?

A I haven't seen it. I haven't been inside the plant.

Q Do you know where the coal is extracted for use in that plant?

A Yes.

Q Have you ever seen samples of the coal to determine sulfur content?

A Would you repeat the question, please?

Q Have you seen sampling results determining sulfur content of the coal used to fire the generator?

A Yes, I have.

Q When?

A Oh, I've seen a number of them over the years, since 1969, I suppose.

Q But you've never seen the plant, and you've merely estimated what the emissions were, is that right?

A I have seen the plant, but I haven't been inside the actual operation.

Q Have there been any claims of injury to your knowledge occasioned by the operation of the Centralia coal-fired generating station?

A Not to my knowledge.

Q You stated that you observed vegetation in the vicinity of the

Centralia plant in August of 1975. How come you were there?

A We have been conducting annual surveys there since 1969, some years, twice each summer. This was under a contract with Pacific Power at the request of the state that we have this program.

Q And your visits, you say, were during the growing season. What is the growing season, by your definition, for purposes of testimony here?

A Oh, I would say in general, in that area, April through September.

Q You say that in August of '75 you made your most recent survey?

A That's correct.

Q In the phenology of a plant, isn't August about toward the end of the growing period?

A It's near the end of the active growing period, yes.

Q And isn't it true that exposure to gases such as sulfur dioxide or hydrogen fluoride is greatest to a growing plant at the beginning of its bloom?

A At the beginning of its bloom?

Q Yes.

A With some plants that's true, not with all plants.

Q In the phenology of the plant, what is the most sensitive time to the plant?

A The most sensitive time is usually related to the age of the individual leaves that you're observing, at a stage somewhat in the early stages of development, just before they reach full maturity.

Q And August is really late in the maturity cycle for a plant, isn't that true?

A Many plants grow actively through the entire summer. There are some that don't.

Q Are you familiar at all with the type of vegetation existent in the vicinity of Colstrip?

A Only by what I've read.

Q Have you ever had occasion to determine the sensitivity of the grasslands in the vicinity of Colstrip to exposure from sulfur dioxide gas?

A No, I haven't.

Q Do you know what the rainfall is at Colstrip per year?

A I understand it's about thirteen inches.

Q What is it at Centralia?

A About 45 inches.

Q Quite a bit different in terms of cleansing the atmosphere, for scavenging of gas, isn't it?

A It's quite a big difference, yes.

MR. SHERIDAN: I have nothing further.

HEARINGS EXAMINER: Mr. Graybill?

MR. GRAYBILL: No questions.

HEARINGS EXAMINER: Mr. Peterson?

MR. PETERSON: I have no questions.

HEARINGS EXAMINER: Very well, sir, you're excused. Next witness.

(WITNESS EXCUSED.)

MR. PETERSON: We'd like to say on Dr. Pack's statement there are some misspelled words, and we'll correct them.

HEARINGS EXAMINER: Very well. Since there is no objection to the exhibit, I assume, Exhibit No. 276 is admitted. I guess we admitted Labrie's No. 267-A and 267-B yesterday; if not, they're admitted.

MR. PETERSON: At this time, we will call, and offer the testimony of Donald E. Olson.

DONALD E. OLSON, called as a rebuttal witness by the Applicants, having been first duly sworn upon his oath, both as to his written direct testimony and as to the oral testimony to follow, was examined and testified as follows:

(THE WRITTEN DIRECT TESTIMONY OF DONALD E. OLSON WAS DIRECTED TO BE INSERTED AT THIS POINT.)

TESTIMONY OF DONALD E. OLSON

My name is Donald E. Olson and my business address is 40 East Broadway, Butte, Montana 59701. I am employed by Montana Power Company as the Transmission Design Engineer. I obtained a B.S. in Civil Engineering from Gonzaga University in 1957 and have worked for Montana Power Company since that date.

With regard to testimony of the public witness Ron Wilkerson of Bonneville Power Administration, he was asked on cross-examination about the BPA design criteria on transverse (crosswinds) winds on wire covered with 2 inches of radial ice.

BPA uses as one tower line design criteria, loadings resulting from transverse wind equal to 40 miles per hour on wires covered with 2 inches of radial rime ice. Chas. T. Main and Montana Power Company evaluated the significance to the Colstrip 500 kV line design of this loading on 795 kcm "Mallard" conductor. Our findings are:

1. The 120 mph wind on bare wire used in the Colstrip 500 kV design results in a greater transverse loading on the towers than the 40 mph wind on wires covered with 2 inches of rime ice.

2. The effect of the 40 mph wind on wires covered with 2 inches of rime ice, as far as conductor stress, would be less than the 2 inches of solid ice and no wind used in the Colstrip 500 kV design.

3. Recognition of the possibility of experiencing the 40 mph wind and 2 inches of rime ice would not result in design changes on the Colstrip 500 kV project.

Therefore, the Colstrip 500 kV line design criteria exceeds the above described BPA design load criteria.

During construction of the Broadview to Colstrip 230 kV double circuit line, one Tower No. 423 blew down in high winds on Saturday, October 4, 1975. This was a self-supporting tower that had been erected in sections the previous day. The contractor had not completed bolting the splice plates between two sections of the tower. The temporary lack of bracing permitted the tower to twist about in the wind until failure occurred. This failure did not result from inadequate design of the tower.

EXAMINATION OF DONALD E. OLSON

Rebuttal, Cross, by Northern Plains Resource Council

By Mr. Graybill:

Q Good morning, Mr. Olson.

A Good morning, Mr. Graybill, how are you?

Q Fine. I've been reading your testimony and I'm concerned about line 13. You're talking about ice, and you describe some wires as being covered with two inches of radial rime ice. What is radial rime ice?

A The term radial indicates that there would be two inches of ice surrounding the entire conductor for a total of four inches of ice. The term, rime, indicates an ice of a lower density than solid ice.

Q All right, in line 10 of your statement, you discuss the BPA design criteria, which is designed for wires covered with two inches of radial ice. What does that mean?

A That, I believe, should read "two inches of radial rime ice" also.

Q Okay, we'll interlineate that on my copy and maybe we'll change the record that way. The standard for C. T. Main's 500-kV Colstrip line is also two inches of radial rime ice, is that right?

A No. Charles T. Main didn't use that particular criteria, but the resulting loadings on the wires and towers from the various combinations of wind and ice used by Charles T. Main, results in greater loadings than what result from the wind on the two inches of radial rime ice.

Q Well, I understand your point made here in the first page, and

I'm not concerned with that at the moment. I'm trying to find out what standards C. T. Main did build the line to.

A The 120 mile per hour wind on bare wire, as stated in line 17 and line 18, is the wind loading that results in the greater tower loading than you would get from the 40 mile per hour wind on two inches of rime ice. The accumulation of ice that was used by Charles T. Main is two inches of solid ice, and that results in a greater loading on the wires than would result from a 40 mile an hour wind on two inches of radial rime ice.

Q I understand your point there. I'm trying to find out the difference between radial ice and radial rime ice and solid ice. You've described rime ice as of less density than what?

A Than solid ice. Normally, a density of 50% of that of solid ice is used.

Q So that solid ice is twice as heavy as rime ice is what you're saying?

A That is common. I know in Charles T. Main's assumptions, they used some loadings of lesser amounts of rime ice, and their assumptions were based on 50% of the density of solid ice.

Q In your opinion, is the danger of ice and snow and sleet accumulation on power lines a serious one in Montana?

A It's something that has to be considered seriously in the design of a steel tower transmission line, yes.

Q What about wind? Is wind a serious consideration in Montana?

A Yes.

Q How long have you worked for the Montana Power as a transmission design engineer?

A When I was first employed by Montana Power Company in 1957, I began work in the transmission design section, and I've worked in that section, with the exception of about one year in distribution engineering, so I guess that would be approximately 18 years' experience.

Q Do you have any idea of how many times wind has been responsible for outages on Montana Power's 160 and 230-kV systems?

A No, I have no way of quantifying that.

Q Well, you're familiar, are you not, with the fact that Montana Power keeps a running total of the times that they have outages and the causes for them?

A Yes, that's correct.

Q And that most of them are lightning?

A I would say that lightning-caused outages are probably the most prevalent.

Q Well, I'm looking at a report that was sent from J. T. Evans to Einar Greve in 1973 and it covered the outages on Montana Power's 160 and 230-kV systems between 1968 and 1972. Would you accept my analysis of that report, that wind was responsible for 36 outages in that period, and ice and snow for 14 outages in that period?

MR. PETERSON: I think, Mr. Graybill, it would be fair to the witness if you showed him the document.

MR. GRAYBILL: Surely.

(MR. GRAYBILL SHOWS DOCUMENT TO WITNESS.)

A Yes, this is taken from our operating records.

Q So you can confirm, subject to a recount, if you want to, that the number of times that wind was responsible for outages on those lines was 36 in that 4-year period and ice or snow 14, right?

A Yes. I think a point that should be made in that regard is that many of your lightning-related outages are momentary and do not have the impact on your system operation that those related to ice and wind may have. The duration of an outage -- if you have a severe ice and wind storm, the consequences can be much greater than those related to lightning, and for that reason, ice and wind must be considered very seriously.

Q In other words, lightning outages are sometimes very temporary, but when a line is broken by the ice and wind, then it's a lot more difficult to repair?

A In general, I think that would be the case.

Q Have you had occasion, as an engineer, to study the experiences with meteorological liabilities encountered on the EHV transmission line at a place called Olvero Saddle in California?

A I would like to see the information referred to. I believe I know the project you're referring to.

(MR. GRAYBILL SHOWS DOCUMENT TO WITNESS.)

A I'm not sure that I have seen this paper before, but I do believe I am generally aware of this project.

Q Well, the paper I showed you is one that I think you'd agree was presented to the IEEE Transmission Distribution Committee at a seminar in Los Angeles in 1970, and it related to the 500-kV transmission line that went over this saddle, and I think you would agree with me that after three years of difficulty, they had to move the line from that position into another locality, isn't that right?

A That is correct.

Q And I'm sure you must be aware of the meteorological report from Meteorology Research, Inc., which is Applicants' Exhibit No. 87 here -- that's the meteorology report on the Colstrip line. You know about that, don't you?

A Yes.

Q In that report, on page 13, the meteorologists say that "from our experience this winter, and from a meteorological standpoint, it would be desirable to go around the south end of Horse Butte rather than over the top." Do you know whether routing changes have been made in accordance with this meteorology report and other suggestions than the one I've read?

A I don't know the timing, the exact date of that report, but we have not done anything to firm up the definite route subject to the findings of this hearing, and depending upon the corridor selected as a result of this hearing, we would take that recommendation into consideration to the extent that it was relevant.

Q In the case of the 500-kV that had to be moved in California, they had a number of problems, and one of them was ice and one of them was wind, and as I'm sure you know, they had towers collapse two or three times, even after repairs. They got into a situation involving what they called a galloping conductor. Can you tell me what that means?

A That's a low-frequency high amplitude movement of conductors under certain wind and usually ice combination.

Q In other words, the conductor gets to blowing and moving in an oscillation, a rhythmic oscillation, is that it?

A That's generally correct, yes.

Q And why is that dangerous?

A Well, there's a potential for wear on the conductor and at the support points, and also, the mechanical loadings transmitted to the towers can be a major consideration.

Q In the conclusions that were drawn by the engineers presenting this paper after they studied this case, the first conclusion they drew was this: first and foremost of these -- they're talking about conclusions -- was that the meteorological analysis of the proposed EHV routes must be made as a part of the line design, since the cost to modify the lines after construction can be prohibitive. A meteorologist can be invaluable in helping to determine the effect of terrain on local weather conditions. Do you agree with that conclusion of those engineers?

A In general, yes.

Q Well, the meteorology group, Meteorology Research, Inc., which is the group that did a meteorology report on the Colstrip line, which is included here in this hearing as Exhibit No. 87, stated as the first line of their conclusion, on page 17, quote, very little and absolute conclusions can be drawn from one 7-months' sample data -- sample of the data. Do you agree with the Meteorology Research, Inc., that did the study for Colstrip, that that's true?

MR. PETERSON: To which I'm going to object on the grounds that it's beyond the scope of the direct examination of this witness and is also repetitious to the testimony of other witnesses who have testified on behalf of the Applicants with this exact line of questioning.

HEARINGS EXAMINER: Well, I think it is repetitious, but you may answer that to see if you agree with the meteorologists.

A I would like to see that entire report to see in what context that statement is being made.

(WITNESS EXAMINES REPORT.)

A I believe you have to consider this conclusion stated on this page 17 in total. These seven sites were established to check wind and icing conditions and were not to establish the design criteria for most of the transmission line. That was to be based -- is based -- on known experiences, as researched by these people over a period of many years, and then, based on their experience elsewhere, they selected a few locations along what was then the proposed route, where, due to special terrain features, elevation, location of water bodies, whatever, they felt some additional checking should be done, and I would agree, as they state there, that one additional winter of measurements at these locations is in order, to check, mainly, I think, on icing. They state there that they were getting indications that the wind assumptions used on the majority of the transmission lines would probably be appropriate at these sites. They were finding some reductions in wind, and so on, but I would agree that one more winter of measurements at these sites would be in order.

Q In other words, you think that before any line design is completed, there has to be more meteorology information gathered?

A No. Before the towers used at these particular locations were decided on, some more measurements should be taken, and this will be done, and there is time to do this, and this doesn't have any bearing on the basic tower design that will be used on 98, 99% of the line.

MR. GRAYBILL: Mr. Peterson, I think it would help me get a candid answer from the witness if you wouldn't nod your head.

Q So I understand you to say that the meteorology report here would not be used as a part of the basis of the line design?

A Their report will be used as a part of the basic line design, but the basic line design does not hinge on the part of the report that was gathering information at these peculiar locations that represent only a very small percentage of the total project.

Q This conclusion drawn by the engineers in the California case that I just quoted to you said that first and foremost, they had learned that a meteorological analysis must be made a part of the line design. Now, this is your meteorological analysis this Exhibit No. 87.

A When you use the term, line design, that would include the total design, which would consist of the basic design applied to the majority of the project, plus any special design considerations at peculiar locations such as this ridge or saddle that was encountered in California.

Q Well, I think you and I could agree that most any competent engineer could draft plans or design a line for a simple, straight place, with no particular weather or wind problems, don't we agree on that?

A You might be oversimplifying the task.

Q The point is, according to the California study, that you have to use meteorological data in designing your line, isn't that the point?

A That's correct, and that is being done in this project.

Q Well, it's being done, but the Meteorology Research, Inc. group states in its conclusions that it strongly recommended that another winter of data be collected to refine the correlations developed this year, so what we have done here, we have come to the Board of Natural Resources, proposing a line design in the face of our meteorologists' advice that we need more data, isn't that true?

A Their recommendation for additional data is that these -- I don't recall whether it's six or seven sites which might represent two or three percent of the total project -- and only in these areas, would you modify the design if, in another winter's testing, you found more severe icing than what we have assumed. On 98% of the remainder of the line, these findings at these peculiar locations wouldn't affect the design.

Q Well, suppose 1% of the line goes down, does that affect the transmission of electricity, Mr. Olson?

A It sure will, and that's why these special locations will be studied further.

Q Are you suggesting to the Board of Natural Resources that you should ignore your meteorologists' recommendation that another winter of data be collected?

A In no way.

Q You agree that we need more data to confirm that the basic line design that will be used on 98, 99% of the line, is appropriate at these particular locations? So what you're saying is that you're not sure now that the basic line design is appropriate at these locations?

A Personally, I'm confident that it is, but based on the recommendations of the consultant, I think it's prudent that we take advantage of another winter's observations at these locations.

Q In order to be sure that the basic line design is appropriate at those locations, right?

A That's correct.

Q But we haven't done that before we've sought permission to build the line, right?

A No, we haven't.

Q And isn't the hearing designed to site the line?

A That's part of this process, yes.

Q You have a recommended corridor here in the hearing, haven't you?

A Yes.

Q And yet you're not sure that the line you've designed is adequate in that corridor at some points, according to your meteorologist?

A But there are ways that are quite practical to modify the design that we will use as our basic design at these locations by using the heavier type towers or whatever might be required. It isn't a major problem.

Q Well, that's what they seem to have thought in that California case, because that was a pass fairly close to Los Angeles, in what they thought was a fairly moderate climate, but they found out after three or four rebuildings of the line that it wouldn't work, didn't they?

A I don't remember the detail.

Q Would you like to go over them with me? There were many times that they rebuilt the line, weren't there?

A I would have to take your word for that.

Q And the result was that they eventually moved the line to a different place, wasn't it?

A That's right, and by using the measurements that we have taken at these peculiar locations, plus additional information, we hope to be able to slighly adjust the location, if necessary or prudent, to prevent having to do it again.

Q But in this California case, they actually had to move the line, which would involve changing the site, wouldn't it?

A Yes. As I recall, they used no meteorological consultant prior to the initial location and design of this project, and that isn't the case in this project.

Q Well, as a matter of fact, that's not correct. Weather information was collected by the installation of a mechanical weather station and a wind speed and direction instrument. All of that was done, so they did collect information. The point seems to be their conclusion that you must collect that information, as it says here, as a part of the line design. Then you remember I read you this sentence, this clause: "Since the cost to modify lines after construction is completed can be prohibitive -- You understand, then, that they're proposing to do this study before the line is built and not to modify it later, isn't that true?

MR. PETERSON: Mr. Davis, I move to strike Mr. Graybill's testimony prior to the question.

HEARINGS EXAMINER: Sustained.

Q Now, I'll ask you this. Do you mean by your last statement to disagree with the conclusions of the study that it's more costly to modify lines than it is to engineer them correctly in the first place?

A I couldn't question that at all.

Q And do you disagree with their suggestion that a complete meteorological analysis be made, then, before the line is finally designed?

A Well, their interpretation of the term, complete, is open to considerable discussion.

Q But you would agree that it is necessary to do further meteorological work before being sure that the line, as applied for in this action, is properly sited at certain points along the line?

A Well, it has been stated before it is our intention to make further measurements at these very few locations on the line.

Q And the purpose of making those further investigations is to determine whether the siting is right and whether the line design is right at those points?

A That's correct.

Q And that has not yet been completed?

A That's correct.

Q There were no such studies made this last winter, were there?

A No.

Q That remains to be done?

A That's correct.

Q It is true, is it not, that in the winter that you did collect meteorological data, there were no severe icing periods that winter?

A I don't know that that applies to all sites -- whatever is in that report there.

Q That's exactly what their conclusion says here, that there were no severe icing periods this winter. You'd agree with that, wouldn't you? I'm on page 17.

MR. PETERSON: I have a continuing objection to this line of questioning as being repetitious.

HEARINGS EXAMINER: You may have a continuing objection.

Q Do you see the beginning of the sentence of the second paragraph on page 17, Mr. Olson?

A I think I agree with that, but I think it's important to state that these measurements -- our basic design is based on two inches of solid ice, which is greater than that used by Bonneville Power Administration tower design engineers in this area. If you've looked around for many, many years, you might eventually get a measurement some place that would exceed this, but there's no experience to indicate that this would be the case.

Q There is no experience that indicates that there would be more than two inches of solid ice?

A Let me restate that. The transmission line design, the probability of experiencing it on your longest span of a given transmission line dictates the use of a higher design criteria.

Q Do you know of serious storms in the area where this line is being built where ice has been a factor?

A I couldn't cite any.

Q Well, now, C. T. Main is the electrical engineer that's doing the line design, isn't that right?

A They are the engineers, yes.

Q And in your statement, you say that C. T. Main and the Montana Power evaluated the significance of the line design concerning this matter, right?

A That is correct.

Q And I take it that when you say the Montana Power, that you, since you're the transmission design engineer, participated with C. T. Main in evaluating the significance of the Colstrip 500 line?

A Yes, in conjunction with transmission engineers from the other utilities.

Q Now, I've just shown you what has been marked for identification as Northern Plains Resource Council Exhibit No. 18, and that's an interoffice memorandum from a member of the staff of C. T. Main in the file. I'd like you to study it.

A I'm familiar with that memorandum.

Q Does that deal with icing in an area near where the Colstrip line is being built?

A That's in the area, general area, of the eastern part of the Colstrip-Hot Springs project.

Q It deals with an ice storm on a power line, on a BPA power line -- not a BPA, a Bureau of Reclamation power line -- out of

Yellowtail Dam, doesn't it?

A Yes.

Q And was there an ice storm that damaged that line?

A Yes.

Q And how extensive was the damage?

A Well, the damage resulted from conductors, splices.

Q Well, how extensive was the damage, do you know?

A Well, it required the replacement of some towers, eleven, I believe.

Q Eleven or seventeen? Which is it?

A Eleven.

Q Eleven towers were down, is that right?

A That's what this report says.

Q What meteorological phenomenon caused that line to go down in the area near the eastern end of Colstrip's line?

A Well, this states that there were combinations of ice and wind, but I would suspect that since it started from splice failure on the conductor that it was the amount of ice that caused the failure of the conductor splice.

Q Now, you are familiar with that memorandum, or at least, with that storm, is that right?

A Yes.

Q And C. T. Main certainly is familiar with it, aren't they, because that's a memorandum in their file?

A That's correct.

Q And how much ice was there on the lines, Mr. Olson?

A Well, Mr. Wolf had the impression that ice was observed to be six inches in diameter, which, on this conductor, which was

1.2 inches in diameter -- that would mean that the radial ice was something like 2.4 inches, and in all probability, it was rime ice.

Q Does it say that it was rime ice, or are you assuming that, Mr. Olson?

A From our experience on our system, when we get ice of that diameter, it is not solid ice.

Q Are you saying it's not possible to get solid ice that thick?

A It's possible, but I don't believe that it's probable in eastern Montana.

Q I'm showing you the California case that we talked about a few minutes ago. I'd like you to note the first paragraph at the top of the page and show you what the meteorologist thought was possible at that location. How many inches of ice does he say is possible?

A Well, they anticipated that they could experience at that location 20 inches of rime ice.

Q Which translated into your figures of 50%. would be 10 inches of solid ice?

A No.

Q You told me just a few minutes ago that rime ice is 50% of solid ice.

MR. PETERSON: I'd like Mr. Graybill let the witness answer the last question. He was about to answer it and then got another one.

HEARINGS EXAMINER: You go ahead and answer the question.

A Volume is not directly related to diameter of ice, so I think the calculation was probably oversimplified.

Q Well, the point I'm making is that this meteorologist, in a California pass, found that there could be up to 20 inches of rime ice possible, is that right?

A That was their finding in that location.

Q And the memorandum that you're holding in your hand, proposed Exhibit No. 18, describes how many inches of ice?

MR. PETERSON: I'm going to make another objection. This line of questioning is immaterial.

HEARINGS EXAMINER: Very well, you have a continuing objection.

A To keep it on a common basis of what was used in my testimony, referring to it as radial ice, it would be 2.4 inches of radial ice.

Q Or, as translated as the author put it, six inches in diameter, right?

A Correct.

Q And what you've done in computing that, you've taken the size of the wire out of the middle and then you've said that the difference is 2.4, right?

A No. There's 2.4 inches of ice surrounding the conductor.

Q Yes, on each side.

A On each side.

Q Plus the center core of the wire?

A That's correct.

Q Do you have any evidence that you, yourself, know personally that indicates the nature of the ice that knocked down the Bureau of Reclamation's line?

A No, I don't have any personal knowledge.

Q And of course the report you have before you doesn't say it's rime ice, does it?

A No, it doesn't indicate the density of that ice.

MR. GRAYBILL: Have you seen this?

MR. PETERSON: Yes, that's been introduced once before.

HEARINGS EXAMINER: Is it in evidence? Is this exhibit one that you introduced in the deposition of Einar Greve?

MR. SHENKER: No, no exhibits were introduced in Mr. Greve's testimony

HEARINGS EXAMINER: Any objections, Mr. Peterson?

MR. PETERSON: No, I have no objections.

HEARINGS EXAMINER: Very well, Northern Plains 18 is admitted.

Q Now, in the face of this evidence in C. T. Main's files and your knowledge of it and your knowledge that eleven towers were downed in that storm which involved this six inches in diameter ice, in the face of that, you still designed this line for two inches of accumulated radial ice, is that right, Mr. Olson?

A Two inches of solid radial ice, that's correct.

Q You also discuss in your statement a tower that fell down when it was being constructed in a field on October 4, 1975, on the Broadview-Colstrip line, did you not?

A Yes.

Q And you attribute this failure to the temporary lack of bracing in the tower. How do you know that the braces were not tightened?

A This was reported to me by Mr. Cain --

Q Who?

A Mr. John Cain, manager of construction on this project.

Q And he told you that the bolts weren't tightened?

A He reported this to me. I believe it was in writing, and I also had a conversation with him in this regard.

Q Do you have the report that he made in writing?

A No, I don't have that report with me.

Q Well, I know you don't have it with you, but do you still retain it?

A I'm sure that that report is in my files, yes.

Q Can you make a copy of it available to us?

A No problem.

MR. GRAYBILL: Is that all right, Jack?

MR. PETERSON: Yes.

Q Did you personally examine the fallen tower?

A No, I did not.

Q Do you know whether or not the bolts sheared?

A I could not answer that. I do know that all bolts were not tightened.

Q Well, it's how you know that that I'm examining. You know that because somebody told you that, not because you personally were there when they were not tight, isn't that true?

A That's correct.

Q And of course a contractor who has had a tower fall down on him needs to have an explanation for it, doesn't he?

A Well, the contractor would like to be able to establish a case that it was something else, but he knows well that in this case he did not have that case, so he is quite willing to accept what was the obvious.

Q Is it normal for contractors to put up towers and leave the bolts untightened?

A When a tower of this type is erected in sections, right at that time all bolts are not always tightened, but in this case, it would appear to me that some poor judgment may have been used on the part of this erection crew in the number of these bolts that were left untightened over this weekend.

Q Yes, that prompts my next question, which is, can we expect in other farmers' fields up and down the line that other towers may topple and fall?

A We and our engineers are able to control this, but as long as we have human beings out constructing these lines, there is a very small potential for something like this happening again, but we sure hope not.

Q Did you talk to any of the workmen as to whether or not the bolts were tightened?

A No, but I have had conversations with representatives of the contractor, but it's been long enough ago I don't remember exactly what they said about it.

Q What are splice plates, Mr. Olson?

A These are plates necessary where several angle-irons come to a common point and are joined together by bolting them to the splice plate.

MR. GRAYBILL: I believe that's all.

HEARINGS EXAMINER: Mr. Shenker?

MR. SHENKER: No questions.

HEARINGS EXAMINER: Mr. Meloy.

MR. MELOY: No questions.

HEARINGS EXAMINER: Mr. Peterson.

Rebuttal Redirect, by Applicants

By Mr. Peterson:

Q Mr. Olson, do you know whether or not two inches of solid radial ice is heavier than 2.4 inches of rime radial ice?

MR. GRAYBILL: I'd like to object to that question unless you tell me the purpose of it, Mr. Peterson. There's no testimony about any 2.4 inches of rime ice. I don't mind you using that number if you want want to find out the comparison between 2.4 inches of rime and 2 inches, but if you're trying to imply that any particular ice that we've been talking about is that dimension, I think it's objectionable as not based on the evidence.

HEARINGS EXAMINER: The objection is overruled. The evidence doesn't say which it is.

A Assuming a 50% density, the two inches of solid ice would be heavier than 2.4 inches of rime, and I'm not sure at exactly what density the 2.4 inches would exceed the weight of two inches of solid ice.

Q Do you feel that the experience that the Bureau of Reclamation had on their line near Yellowtail Dam would dictate a change in your design criteria for the transmission line, the 500-kV for Colstrip?

A No, I do not.

Q Are you familiar with the fact, Mr. Olson, that the line of Southern California Edison at the Averde Pass was not designed for ice or snow?

A Would you restate that question, please?

Q Are you familiar with the fact that the Averde Pass line of Southern Cal Edison was not designed for ice or snow?

A No, I can't say that I am.

MR. PETERSON: I have no further questions.

HEARINGS EXAMINER: Mr. Graybill.

Rebuttal Re-cross by Northern Plains Resource Council

By Mr. Graybill:

Q Well, Mr. Olson, maybe one of the reasons that you're not familiar with that is that it might not be true. The conference paper which you and I were examining concerning that line has general design information concerning the original line and it does include the weight of 5/10ths of an inch of radial ice on conductors and ground wires, so of course it wouldn't be true that it wasn't designed for any ice. It also has some wind design which I'm interested in, but you would understand that to be the case if it's in the statement, wouldn't you?

A It sounds reasonable.

HEARINGS EXAMINER: What was the answer?

MR. PETERSON: It sounds reasonable.

Q And I think you are familiar, you said, with the case, and would realize that after the line fell down, it was redesigned and rebuilt two or three times before it was finally moved. Certainly you understand that, don't you?

HEARINGS EXAMINER: I'll sustain your continuing objection, Mr. Peterson, because that's improper re-cross and repetitious.

Q In the memorandum to which both Mr. Peterson and I have referred, after the first time the line fell down, appears this statement: "Based on the weather consultant's reports, the lines were redesigned to withstand winds of 120 miles per hour." Is that the same wind design that you have talked about being designed in the Colstrip line?

A The wind velocity that you're reporting there is the same wind velocity being used in the Colstrip design.

Q Then the next paragraph says, "On April 18, 1967, the first evidence of other problems in the area occurred when the groundwire peak on the deadened tower collapsed due to rime ice on the groundwire, so that we had failures even after the redesigning for 120 miles an hour." Were you familiar with that?

MR. PETERSON: I'm going to object to that as assuming facts not in evidence and it isn't proper re-cross.

HEARINGS EXAMINER: Sustained.

Q I'm showing you proposed Exhibit 19. That is the engineering memorandum report to the conference that we discussed earlier, is it not?

A Yes.

Q And it does concern, does it not, the 500-kV power line which you said you were familiar with in this California case?

A Yes.

Q And you've skimmed or read a good deal of it. Does that seem to describe the circumstances as you understand them?

A Yes. I can't argue with anything that is in there.

MR. GRAYBILL: We'll offer the report into evidence, Mr. Hearings Examiner and I'll make copies of it.

Rebuttal, Re-redirect, by Applicants

By Mr. Peterson:

Q Do you have any knowledge of the problems encountered by Southern Cal Edison at this 500-kV line?

A No, my familiarity with this situation, as far as I can recall it today, was through information related to me by a representative of MRI, Meteorological Research, Inc.

Q Do you know whether or not anyone from C. T. Main and Company had any knowledge of the problems of this line?

A I cannot state that with certainty, but knowing Mr. Zobel's activities in the industry, including this group, and knowing that he gets all transmission papers or papers related to transmission projects, I would be confident he is familiar with it.

Q You've never seen this paper before today?

A I can't state with certainty one way or the other.

Q Is there any information in this paper of Northern Plains Resource Council No. 19 by which you could compare their design criteria with that of the Colstrip area?

A Well, they refer to amounts of ice and velocities of winds that were felt to be appropriate at that particular location in California, which would not seem to have any bearing on transmission design in Montana.

MR. PETERSON: Mr. Davis, I'll object to the introduction of this exhibit on the grounds it's immaterial and irrelevant.

HEARINGS EXAMINER: The exhibit will be admitted for the limited purpose only of determining whether the line that blew down down there was designed for wind and ice or whether it wasn't.

MR. GRAYBILL: I have no further questions.

HEARINGS EXAMINER: Mr. Peterson?

MR. PETERSON: I have no further questions.

HEARINGS EXAMINER: Very well, you're excused, sir.

(WITNESS EXCUSED.)

HEARINGS EXAMINER: Next witness.

C. S. BRANDT, called as a rebuttal witness by the Applicants, having been first duly sworn upon his oath, both as to his written direct testimony and as to the oral testimony to follow, was examined and testified as follows:

MR. PETERSON: I will offer the testimony of Dr. C. S. Brandt and also move into evidence Applicants' Exhibit No. 275. There are four corrections on the statement which I will note for the record. On page 1, line 20 is a misspelling of the word "crops." On page 3, line 12, there is a typographical error, and the word "overage" should read "average." On page 4, line 3, the word "for" in that sentence should read "of," and on page 5, line 11, the word, these, should be inserted between the two words "that" and "lesions," so that the phrase would read "that these lesions." With those corrections, we present Dr. Brandt for cross-examination.

(THE WRITTEN DIRECT TESTIMONY OF DR. C. S. BRANDT WAS DIRECTED TO BE INSERTED AT THIS POINT.)

TESTIMONY OF C. S. BRANDT

My name is C. Stafford Brandt and I reside at 4231 Sunnybrae Drive, Bellevue, Washington. I presently work as a consultant or advisor on the effects of air pollution on vegetation and agriculture. In this capacity, I have been retained by Montana Power Company. My full resume is as follows:

BIOGRAPHICAL OUTLINE

Education: Basically in Chemistry, with additional training in Agronomy, Soil Chemistry and Plant Physiology.
B.S. - University of Washington
M.S. - Virginia Polytechnic Institute
Ph.D - University of Wisconsin

Experience: 1946 - 1956 Chemist, U. S. Plant, Soil and Nutrition Laboratory and adjunct professor, Cornell University, Ithaca, N. Y.

In 1956, assigned by the U. S. Dept. of Agriculture to the then new Air Pollution Programs of the U. S. Public Health Service. Continued to serve as Senior Scientist for USDA and chief of the agricultural unit throughout the development of the program into E.P.A. During this period, directed research programs on effects of air pollution on vegetation, served as advisor to various agricultural groups, communities and states on air pollution effects, served on working parties for the OECD and the WMO, and as visiting scientist to the Institute for Air, Soil and Water Conservation, Essen, Germany.

In 1968, assigned as Special Assistant to the Director, Corps Research Div., USDA, to prepare critical review of the effects of fluorides. This served as a major source document for the publication, FLUORIDES, by the National Academy of Science.

In 1970, retired from USDA and served as consultant (60% of my time) to the Bureau of Air Quality Control, State of Maryland. This relationship continued until moving west in July, 1974. Other consulting activities have included service on advisory panels to the Maryland Power Plant siting Program, through John Hopkins University and the Maryland Academy of Science; consultant on air quality criteria to West German Academy of Engineers; consultant on background analytical methods to the World Meteorological Organization.

Earlier testimony has suggested that sulfur dioxide, fluorides, acid rain and particulates from power plant operations may have a significantly detrimental effect upon the vegetation, agriculture and forestry of the Colstrip area. My testimony will review, very briefly, the recognized effects of these materials and provide my evaluation of the adequacy of existing ambient air standards for the protection of the vegetation, agriculture and forestry of the Colstrip area.

There are two recognizable effects of sulfur dioxide: (1) an acute injury resulting from exposures of a few hours or less to relatively high concentrations of sulfur dioxide and, (2) a chronic injury resulting from a series of sub-acute exposures, or long time exposures to low levels, or a combination of both. The symptoms of both types of injury are well described (1, 2, 3, 4, 5 and 6). It is also well recognized that while these symptoms of injury are characteristic of sulfur dioxide, they are by no means specific (3, 4). Many, if not all of the symptoms, can be produced by other agents or stresses. However, despite these problems of identification, a competent observer can usually easily identify acute sulfur dioxide injury in the field. Chronic injury is not as easy to identify unequivocably, but it is often possible. However, for our purposes, we are less interested in identifying sulfur dioxide injury than in defining an atmosphere that will not result in damage. In other words, are Montana's ambient air quality standards adequate.

It is a fairly simple exercise to expose, for example, squash plants to 2600 ugm SO_2/m^3 for two hours and demonstrate acute injury. It gets more difficult to define points of incipient acute or chronic injury. But a large number of these studies have been done and the results published. Other workers have studied the problem in the field, using portable chambers such as Thomas and Hill did in the Salt Lake area, or natural exposures from single sources such as Guderian and co-workers did in Biersdorf. The revised Chapter 5 for Air Quality Criteria for Sulfur Oxides (1) provides an adequate review of the extensive literature applicable to establishing standards. Applicants Exhibit 275.

I know of no one among the contributors and reviewers of the Chapter 5 document who takes any serious exception to the content or adequacies of the document.

EPA did not impose a long time overage because most workers felt that chronic injury was the result of a series of sub-acute exposures rather than a mean exposure. However, many of us believe there is sufficient evidence to demonstrate that a long term mean, along with a peak value limit, does in fact limit the sub-acute exposures. In this, we are considering any visible foliar injury, acute or chronic, or any detectable growth response as damage. The available literature, including the recent paper of Hill and Barrett (7) that provides some new information specifically applicable to the local problem, suggests that the short term and long term standards for SO_2 imposed by Montana are clearly sufficient to protect the vegetation, the agriculture and the forestry of the Colstrip area from any damage due to SO_2.

Except under exceptional circumstances, we do not see typical acute injury to vegetation from short time, high level exposure to fluorides. The injury usually seen results from the accumulation of fluorides in plant tissue over a period of time.

The symptoms are quite characteristic and well described in several references (4, 5, 6, 8, 9). Analysis of the leaf tissue can provide confirmation ~~for~~ of the diagnosis.

Many of the grasses and forbs important to forage and hay, as well as many other plants, can accumulate fluoride in excess of 100 ppm with no noticeable symptoms or effect on their growth. The animals feeding upon such material can exceed the safe dietary intake of fluoride and can ultimately develop the symptoms of fluorosis.

The NAS review (9) was prepared to serve as the basis for an air quality criteria document and, ultimately, as standards for fluorides to be issued by EPA. In the absence of further issuances by EPA, the NAS document must serve - and does so very well - as a criteria document. The Montana standards for fluoride are certainly a conservative derivation from the material presented in the NAS document. The available literature supports the conclusion that the projected fluoride emissions in the Colstrip area should not produce any significant adverse effects on native vegetation or animals, agriculture including cattle, sheep and other domestic animals, or forestry of the area.

Dr. Gordon describes symptoms of injury on conifer needles from SO_2 and fluorides in addition to the symptoms described in the references I have cited. He claims that the symptoms are characteristic and quite specific. Unfortunately Dr. Gordon has not, to my knowledge, published his method or data demonstrating the degree of specificity. While I understand that other scientists have used or are using his technique, to my knowledge no one has published data confirming Dr. Gordon's observations.

The lesions may be characteristic and they may in time prove helpful in field diagnosis of injury; however, when I read that 30 to 40% of 1972 needles at Colstrip are injured, I have some reservations about specificity. Most workers in the field consider air pollution injury as any response of the organism to the pollutant and reserve the term "damage" to refer to adverse effects of such injury on useful function - appearance, growth rate, yield, etc. Dr. Gordon consistently uses the term "damage" when referring to these microscopic lesions, but I can find no report or other evidence demonstrating that these lesions do, in fact, have a direct adverse effect on useful function of the pine trees.

Acid rain may or may not be a cause of the long - short needle symptom on scots pine. It is pertinent to note that within the extensive plantings of this tree in the Ruhr District, the symptom is not recognized as serious or air pollution related (10). But causal relation or not, there is no basis in the literature for assuming that the acid rains noted on the East Coast or in Europe or any of the possible effects from them will occur from an isolated source such as the Colstrip installation. A recent paper by Newman, et al (11) adds support to a growing feeling that the oxidation of sulfur dioxide to sulfur trioxide or sulfate is not as rapid or complete as has often been assumed. The oxidation is definitely limited by the amount and nature of particulate in the plume.

The reasoning put forth that a dilute solution of sulfuric acid, initially at pH of 4.5 to 5.5, will increase indefinitely in acidity through evaporation is sound only if the solution is totally unbuffered. In other words, the initial solution would have to consist of pure water and pure sulfuric acid, an impossibility in any real rainfall condition. In a real situation of natural rainfall and in the presence of some additional dust, as would usually be present in Colstrip, the pH could fall somewhat or not at all as the water evaporated. Complete evaporation would not leave pure concentrated sulfuric acid, but salts.

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HEARINGS EXAMINER. Very well, Mr. Sheridan.

EXAMINATION OF DR. C. S. BRANDT

Rebuttal, cross, by Department of Natural Resources and Conservation

By Mr. Sheridan:

Q Dr. Brandt, remember when your deposition was taken by me in Butte, April 10th of 1975?

A I do.

Q At that time, you had not been to Colstrip, had you?

A No.

Q And at that time, your tentative assessment was that there would be no injury to vegetation occasioned by SO_2 or hydrogen fluoride, correct?

A If the standards were met.

Q And that was your assumption, which gave the basis for your tentative assessment without ever being to Colstrip?

A That's right.

Q You, sir, have never conducted any field studies on the effects of hydrogen fluoride or SO_2 on animals, have you?

A On animals?

Q Yes.

A No.

Q And hydrogen fluorides?

A Pardon?

Q You have never done any field studies on the effects of hydrogen fluoride on animals either, have you?

A What do you mean by field studies?

Q Have you made any field studies yourself upon the effects of hydrogen fluoride upon animals?

A That I conducted personally in any detail? No.

Q Since your deposition was taken April 10th of 1975, have you visited the Four Corners plant?

A No, sir.

Q You were first retained by Montana Power Company in January of 1975, is that correct?

A That's probably roughly right.

Q You are also a retained consultant to Exxon and Occidental Chemical, correct?

A I have worked for them.

Q Any other industrial polluters?

A That's all.

Q You have never, have you, Dr. Brandt, conducted experiments or studies on land reclamation in the vicinity of a coal-fired power plant?

A No, sir.

Q And you have never, have you, Dr. Brandt, conducted studies yourself on acid rains?

A No, sir.

Q On page 2 of your statement, on line 21 -- do you have your statement, sir?

A One moment.

HEARINGS EXAMINER: Page 2, line which?

MR. SHERIDAN: 21.

Q You say: "For our purposes, we are less interested in identifying sulfur dioxide injury than in defining an atmosphere that will not result in damage." First of all, what do you mean, damage?

A Well, let me distinguish between injury and damage, as used by most people in this field. Injury applies to any response of the organism to the toxicity. Damage is the result of that response upon the intended use of the plant or the organism. Is there an adverse effect that has some shortening of life, reduction of growth, appearance, if this is the named criteria, or what have you?

Q Do you define perimeter burn occasioned by exposure to hydrogen fluorides on a leaf as damage or injury?

A What plant?

Q Oh, let's take sweet cherries.

A Burn on leaf?

Q Right.

A To what extent?

Q Perimeter burn, let's say 10%.

A It probably would not cause any change in the growth rate or the yield of the crop and it would not be damage, only for appearance.

Q Have you ever conducted any experiments yourself on the effects of hydrogen fluorides upon sweet cherries?

A On sweet cherries? No.

Q I assume you will agree that as Dr. Pack said, a plant is generally most sensitive to SO_2 during the early stages of its phenology?

A I didn't hear Dr. Pack agree to that.

Q Well, would you doubt that?

A Pardon?

Q Do you doubt that a plant is not most sensitive at that time?

A Some plants are most sensitive at that time.

Q Well, let's take Western Wheatgrass. Do you know anything about that?

A I know something about it.

Q Isn't it true, Doctor, that Western Wheatgrass is most sensitive to phytotoxic gases such as SO_2 during the early stages of its phenology?

A It will be most sensitive during those times of its most active growth.

Q And that is generally early in its life, isn't it?

A Generally.

Q Well, it's true, isn't it?

A Within the limits that I have specified yes, that is true, but I am still giving you a conditional answer, sir.

Q Well, is there any other time in Western Wheatgrass's phenology that the plant is more sensitive than during the early stages of its growth?

A During periods of active growth. Now, depending on the climatic conditions, depending upon the entire history of the plant, this could or could not be limited to its initial growth.

Q In terms of sensitivity?

A Yes, sir.

Q What's a more sensitive time?

A I didn't say it was more sensitive -- equally, the most sensitive period is during its most active growth, period, end of point.

Q Does it have a more active period at any other time than rapid growth, early in its phenology?

A Under what weather conditions, sir?

Q Oh, let's take the weather conditions of April at Colstrip.

A It could put on a slight burst of growth and grow into a slightly retarded stage which would not be sensitive and then take off again. It could do this two or three times during the year, and it would be sensitive during those periods of time of active growth.

Q That's during times of plant respiration, correct? Most intensive plant respiration?

A Most intensive respiration, yes.

Q That's when the plant is taking in most of the ambient conditions, right?

A That is when it would be most sensitive.

Q Have you ever studied the effects of SO_2 on Western Wheatgrass in the area of a coal-fired generating station?

A No, sir.

Q Dr. Brandt, on the bottom of page 4, you discuss Dr. Gordon's description of injury on conifer needles from SO_2 and fluorides?

A Yes.

Q Are you testifying here today that Dr. Gordon has not published what the symptoms of injury on conifer needles are from exposure to SO_2?

A What the symptoms of conifer needles are?

Q Right.

A No, I'm not testifying that.

Q And the same is true for SO_2, correct?

A I thought that was what you were talking about.

Q Hydrogen fluorides and SO_2.

A I am not aware of all of Dr. Gordon's publications, but I am not testifying that he has not published regarding the symptoms of SO_2 or hydrogen fluoride. I do not know of any publication of the types of symptoms that he is describing here.

Q You know Dr. Hindawi, don't you?

A I do.

Q And you think quite a bit of him, don't you?

A I know Dr. Hindawi. I respect his opinion.

Q Do you know that he has published on the subject of the effects of SO_2 and fluorides upon conifer needles?

A That he has published on the effects of the SO_2? Yes.

Q Going to page 5, line 9, you say: "Dr. Gordon consistently uses the term 'damage' when referring to these microscopic lesions," right?

A Right.

Q Now, damage, by your definition earlier, was a condition occasioned by exposure to these gases, which shortens the life, limits the growth, or otherwise interferes with the meaningful function of the plant, correct?

A That's right.

Q What's a lesion?

A What I'm referring to here are the microscopic lesions, necrosis, stain, what have you, that Dr. Gordon describes.

Q I assume, then, you're not including hypertrophy of resin canals occasioned by exposure to SO_2 or hydrogen fluorides?

A Pardon?

Q I assume you're not addressing yourself to hypertrophy of the resin canals within the needle occasion by SO_2 or hydrogen fluorides?

A To the extent that those have been described as lesions, yes.

Q What's the function of a resin canal in a needle?

A The function of a resin canal?

Q Yes.

A I would not be qualified to comment upon the function of the canals in conifers at this time. I have not kept up on that branch of the literature.

Q Dropping down on page 5, starting at line 17 -- before we get into that, you will admit, of course, that both SO_2 and NO_2 oxidize?

A How is this again?

Q Will SO_2 oxidize to sulfuric acid?

A Will it?

Q Yes.

A Of course, under specific conditions.

Q In your discussion here, commencing at line 17, you are really addressing yourself more to the rate of oxidation, rather than the fact of an oxidation, isn't that correct?

A That's right.

Q You cite a paper by Newman in 1975 in your statement, reference 11. Do you recall that one?

A Yes.

Q Are you aware of any limitations in the isotopic radio technique used to study the atmospheric oxidation of sulfur dioxide in the plume of a coal-fired generating plant in that study?

A There are some limitations.

Q What are some of them?

A I do not have the paper in front of me, sir. I'm not going to go over them in detail. If you want, we can get hold of it and discuss it in great detail. It is quite an interesting paper.

Q Do you recall whether or not there were any measurements in the plume taken more than ten miles from the plant?

A I do not recall the total distances, no, sir.

Q Well, disregarding Newman, then, as you say you can't recall what that stands for, you would not disagree with me, sir, that there are many, many publications which speak to the oxidation of SO_2 to form acid rain?

A There are many publications that suggest that SO_2 oxidation produces acid rains.

Q Have you familiarized yourself with the publication, Airborne Transport of Sulfur Dioxide from the United Kingdom, by F. B. Smith and G. H. Jeffrey, dated November 1974?

A Where was that published, sir?

Q Atmospheric Environment, Volume 9, pages 643 to 659.

A I don't remember it as such, no.

Q Did you ever familiarize yourself with Rainwater pH close to a major power plant, by Ta Young Li, L-i, and H. E. Landsberg?

A No, sir. I remember that one.

Q Do you recall what their observations were?

A This was about washout around the Chalk Point plant in Maryland. They measured some pH's. There's nothing in there and there's nothing that I know that Landsberg would say that says it's sulfuric acid.

Q Would you disagree that one of the conclusions was that the value of rainwater pH from close to the plant was quite acidic, mostly quite acidic, especially downwind or close to those found before in industrial regions and cannot be noted with comfort in agricultural regions with fishery resources close by?

A That it was acidic?

Q Yes.

A I wouldn't question the acidity.

Q Well, what makes that rainwater acidic?

A There is no evidence as to what did it in that case. It could just as well be SO_2.

Q Well, what comes out of a coal-fired plant, SO_2?

A Yes, sir, among other things.

Q Well, do you know anything more in volume coming out of the Colstrip plant than SO_2 that would be conducive to the formation of acid rain?

A Nitrogen oxide, carbon dioxide.

Q And SO_2?

A And CO_2.

Q Anything else?

A Those would be the major ones.

Q The largest amount of gas is in the form of SO_2, however, is it not?

A No, I think the largest amount would be in the form of carbon dioxide.

Q Did you ever familiarize yourself with the article entitled "The Long-range Transport of Airborne Material and its Removal by Deposition and Washout General Considerations," by R. A. Scriven and B. E. A. Fisher?

A It sounds familiar. It's been some time. The authors sound familiar.

Q Did you ever read the paper, "Sulfate Washout from a coal-fired power plant plume," by Main R. Hutchinson and Franklin P. Hall, Jr.?

A I believe I've read that one, yes.

Q Do you know that their conclusion was that it was shown that sulfate aerosol scavenging cannot account for a washout pattern observed? "Known characteristics strongly suggest that SO_2 scavenging by rain is a primary washout mechanism."

A That was one of the conclusions, as I remember it.

Q When that rain washes out SO_2, what does it form?

A Well, SO_2 in water would form sulfurous acid.

Q And you're not going to tell us here today that sulfurous acid has no potential for damage to the surface of a plant?

A Has not potential? No. It has a potential.

Q Did you ever familiarize yourself with an article entitled "Decay and Transformation Rates of SO_2 as estimated from Emission Data Trajectories and Measured Air Concentrations," by Anton Eliassen -- E-l-i-a-s-s-e-n -- and Jorgen -- J-o-r-g-e-n Saltbones?

A Where are they from? I don't remember the names.

Q The Norwegian Institute for Air Research, Norway, a hearing in atmospheric environment, Volume 9?

A Yes, I've read that one.

Q Do you recall what they have to say about acid rain formation?

A No, sir, I do not, in detail.

Q Did you ever read the article, "Wet Fallout of Sulfuric Pollutants Emitted from a City during Rain or Snow" by Ulf -- U-l-f -- Hogstrom -- H-o-g-s-t-r-o-m?

A Is that the Dusseldorf study?

Q No, Department of Meteorology, University of Uppsala, Sweden.

A No, I don't remember that one.

Q Did you ever familiarize yourself with"ozone formation from NO_x in clean air,"by William Chameides and Donald Stedman?

A I remember that one.

Q Just based on some of these articles that I cited to you, Dr. Brandt, you'll concede, won't you, that there is some basis in the literature for assuming that the acid rains are formed by SO_2 and effects of those acid rains would occur in Colstrip?

A I will assume that they can be formed. I do not conclude from that, though, that they will have any effect on Colstrip.

Q Do you assume, then, that they will have no effect?

A I do not believe that there will be any acid rain effect in Colstrip.

Q And that's based upon your never having studied that question at Colstrip?

A Never having done what?

Q Never having studied that question at Colstrip.

A That's right.

Q Dr. Brandt, did you attend the First International Acid Rain Symposium in Columbus, Ohio, in May of 1975?

A Unfortunately, no.

Q And have you attended the Transport Chemistry -- you didn't go at all, right?

A That's right.

Q Then I take it that you didn't have an opportunity to hear the presentation by William E. Wilson, of the United States Environmental Protection Agency concerning the sulfur balance in power plant plumes?

A No, sir. As I remember, I saw an abstract of it, but that was all.

Q Did you know that the EPA had measured in a coal-fired power plant plume an oxidation rate of 1% per hour for the first ten miles and an increase to a rate of about 3% per hour from ten to twenty miles, as more ambient or rural air is entrained into a plume?

A I know that there have been some studies along that line, and those sound like about the right figures.

Q Do you know how far the conifer stands of significance are located from the Colstrip plants?

A Oh, 50 miles.

Q Have you ever been on the Northern Cheyenne Reservation?

A I've been through there.

Q Have you ever seen the conifer stands there?

A Yes.

Q Do you know how far the conifer stands are on the Northern Cheyenne Reservation from the Colstrip generating facility?

A I'm without a map. I'm estimating 75 to 100 miles.

Q Do you know how close the reservation is to the Colstrip generating facility?

A I don't know where that boundary is, no.

Q Would it surprise you if I told you 17 miles?

A Seventeen?

Q Yes.

A No, it wouldn't surprise me.

MR. SHERIDAN: I don't have anything else.

HEARINGS EXAMINER: Mr. Peterson?

MR. PETERSON: May we have a break?

HEARINGS EXAMINER: Yes, we'll take a recess.

(HEARING RECESSED BRIEFLY AT 10:55 A.M.)

After a brief recess, the hearing reconvened at 11:05 A.M.

CONTINUATION OF EXAMINATION OF DR. C. S. BRANDT

Rebuttal, redirect, by Applicants

By Mr. Peterson:

Q Dr. Brandt, with regard to the statements made and some of the studies discussed with you by Mr. Sheridan, what is the position of William E. Wilson, from the Environmental Protection Agency, and the abstract that you read from the symposium that when he was discussing these studies relative to acid rain, that most of the efforts to date indicate very little SO_2 conversion and do not support a significant role for the power plant SO_2 in the production of acid precipitation?

A That's right.

MR. PETERSON: That's all I have.

HEARINGS EXAMINER: Mr. Sheridan?

Rebuttal, Re-cross, by Department of Natural Resources and Conservation

By Mr. Sheridan:

Q Dr. Brandt, have you familiarized yourself with the position paper of "Regulation of Atmospheric Sulfates" published by the United States Environmental Protection Agency, dated September 1975?

A I have not seen that copy, no. I saw drafts of it, but I haven't seen the final one.

Q Do you know, or would you dispute, that the EPA's observations currently show a slow, initial rate of conversion in plumes increasing as the plume disperses?

A I believe that was the conclusion from the studies that they were reviewing there, yes, sir.

Q And what's the problem insofar as atmospherics are concerned, with the presence of suspended sulfates in the ambient air?

A Let's go back over that one. I got lost on the corner.

Q What is the problem to the atmosphere insofar as the presence of suspended sulfates?

A You mean beyond the analytical problem of determining how much there is there?

Q Right.

A Well, that's one of the major ones right there. Well, sulfates have been -- the medics have related certain changes to sulfate levels, and that is one of the bases for the standards.

Q And one of the more significant problems known to date is the persistency of SO_4, isn't that true?

A It's a terminal oxidation state, yes.

Q Which means that it says in the air longer?

A No, not necessarily. It's a terminal oxidation state. Now, that has nothing to do with the size of the particle.

Q Well,whether it's micron or submicron really is of little moment in terms of presence in the atmosphere at the point of terminal oxidation, isn't that true?

A Well, what's the point you're trying to make?

Q Is SO_2 less persistent or more persistent than SO_4?

A SO_2?

Q Does SO_2 remain less or more persistent in the atmosphere than SO_4?

A SO_2 is less persistent.

Q And SO_4 has a much longer half life in the atmosphere, doesn't it?

A Not necessarily.

Q Do you know the order of magnitude?

A On what particle size, sir?

Q Let's take submicron, Dr. Brandt.

A Submicron is going to last for quite some time.

Q How long?

A Again, how long, would depend on where, what rainfall, what other scavenging things were, what the wind velocity was, how much impaction there was. It is not a statement that you can make a categorical answer to.

Q It does mean, though, when you get the higher levels of suspended sulfates, the total exposure will be longer than an exposure occasioned by SO_2, doesn't it?

A By what?

Q Exposure to the presence of those substances within the atmosphere?

A What is being exposed?

Q Humans, animals, plants.

A The effect on sulfate on the plant, to my knowledge, is zero.

Q I'm asking you whether or not the exposure is longer occasioned by the presence of a longer half life of SO_4 than SO_2?

A Exposure, sir, to me, means concentration times time.

Q You mean dose?

A Yes. Now, if you want to bring concentration into this, then we can get down to something that we can discuss meaningfully.

Q You don't think it's meaningful to discuss the persistence of SO_4 in the atmosphere to air breathers?

A To what?

Q To air breathers -- humans, animals.

A I am not going to discuss the medical standards.

MR. SHERIDAN: That's fine; nothing further.

HEARINGS EXAMINER: Mr. Peterson?

MR. PETERSON: I have nothing further.

HEARINGS EXAMINER: Very well, you're excused, sir.

(WITNESS EXCUSED.)

MR. PETERSON: Mr. Gilder?

CHARLES J. GILDER, called as a rebuttal witness by the Applicants, having been first duly sworn upon his oath, both as to his written direct testimony and as to the oral testimony to follow, was examined and testified as follows:

(THE WRITTEN DIRECT TESTIMONY OF CHARLES J. GILDER WAS DIRECTED TO BE INSERTED AT THIS POINT.)

STATEMENT OF TESTIMONY OF

CHARLES J. GILDER

My name is Charles J. Gilder and my residence is Butte, Montana. Since the first of the year 1976 I have been Secretary of The Montana Power Company. I am also head of Montana Power's tax and insurance department. I was graduated from Missoula County High School (Hellgate) in 1953, received a Bachelor of Science degree in Business Administration from the University of Montana in 1957, then served in the U.S. Army, Fort Lee, Virginia from 1958 to 1960, when I joined Montana Power in Butte. I have served in three departments since joining the Company: the auditing department, the corporate department and the tax and insurance department, and have been Assistant Secretary of the corporation for approximately nine years.

Applicants' Exhibits Nos. 248, 249 and 250 were all prepared under my supervision and control.

The assertion has been made that ranchers in the Colstrip area have suffered financially because of an increase in property taxes due to the energy development at Colstrip. This assertion is simply not true.

DECREASE IN MILL LEVIES

The large taxable values of the Colstrip Project and coal mining properties have contributed to significantly lower mill levies, which in turn result in lowering property taxes, assuming taxable values remain constant.

For example, Applicants' Exhibit No. 248, titled "Mill Levy Comparisons - Years 1968-1975", shows the following mill levies in Colstrip School District No. 19:

YEAR	MILL LEVY
1968	143
1969	136
1970	138
1971	124
1972	114
1973	134
1974	129
1975	98

As is evident from the foregoing, the mill levy has decreased by 45 mills or 31% in spite of inflationary conditions throughout the country. The reason for this is obvious - primarily because of increased taxable values attributable to the Colstrip Project and the mining industry.

EFFECT ON RANCHER WILLIAM GILLIN

Mr. William Gillin has previously testified in this case as a witness for the Northern Plains Resource Council. He blames the increase in his property taxes upon the Colstrip Project. However, an analysis of Mr. Gillin's Rosebud County property tax record indicates that increases in his taxable value, mainly in cattle and improvements, were the reason for his tax increase, not the Colstrip Project.

Applicants' Exhibit No. 249 shows the taxable value of property owned by William Gillin in Rosebud County for the years 1968 through 1975. Applicants' Exhibit No. 250 shows the taxable value of property owned by William Gillin in Rosebud County for the years 1968 through 1975 as well as the actual tax assessed against his property for the foregoing years.

The following table breaks down Gillin's taxable values and taxes for the years 1968 and 197~~0~~5, and shows that the reason for the tax increase assessed against Gillin is the increases in his taxable value:

	TAXABLE VALUE (EXHIBIT 249	PROPERTY TAX (EXHIBIT 250	AVERAGE MILL LEVY (EXHIBIT 250
1975 Land	$ 4,521	$ 518	
Improvements	1,871	215	
Cattle (313 head)	10,135	1,163	
	$16,527	$1,896	114.72
LESS:			
1968 - Land	$ 4,521	$ 654	
Improvements	414	60	
Cattle (202 head)	4,018	582	
	$ 8,953	$1,296	144.75
INCREASE: 1975 - 1968			
Land	$ 0	$ -136	Decrease in Mill Levy
Improvements	+1,457	+155	
Cattle	+6,117	+581	
INCREASE	$ 7,574	$ 600	-30.03
	84%	46%	- 21%

As shown above, Mr. Gillin's property tax increased $600 or 46% over the seven-year period due to:

1. Taxable value of improvements increased $1,457 causing a tax increase of $155;

2. Taxable value of cattle increased $6,117 due to higher prices throughout Montana and the number of head of cattle increased by 111 head from 1968 to 1975 causing a tax increase of $581;

3. Taxable value of land remained the same. Thus, because of a lower average mill (114.7) levy in 1975, this resulted in a decrease of $136 tax on the land.

The presence of the Colstrip Project and coal mining development actually helped reduce Mr. Gillin's property tax. The large taxable value helped reduce the average mill levy some 30 mills or 21% from 1968 to 1975. Assuming the 1968 mill of 144.7 remained in effect in 1975, Mr. Gillin would have been assessed an additional $496 in property taxes in 1975 as shown below:

	1975 TAXABLE VALUE	AVERAGE MILL LEVY	PROPERTY TAX
Assume 1968 Mill Levy	$16,527	144.75	$ 2,392
Actual Tax Paid in 1975	16,527	114.72	1,896
Reduction			$ 496

The above examples illustrate the general impact on all ranchers in Colstrip School District. Property taxes on property would be reduced assuming taxable values remained the same. Increases in taxable values would raise property taxes. However, the Colstrip Project is not responsible for the increase in taxable value of the ranchers.

INCREASE IN TAXABLE VALUE OF CATTLE

Mr. Gillin stated in his testimony that in 1964 cattle were valued at $57.00 per cow and in 1974 cattle were valued at $138.00 per cow. This, in turn, contributed to an increase in taxes levied on cattle in Rosebud County.

This remark should be further clarified to alleviate any implication that the Colstrip Project caused an increase in the taxable value of cattle.

The taxable value of cattle is based on a formula which is determined by the Department of Revenue and the Montana Livestock Association. The factors used are based on the price of cattle sold in the market places throughout Montana. As the market of cattle goes up, the taxable value also increases; if the price of cattle drops, the taxable value decreases.

The critical point is that the Colstrip Project has *no* bearing whatsoever on the price of cattle sold throughout Montana, and consequently no bearing on the taxable value increase on cattle.

In 1975 the taxable value of livestock in Rosebud County equalled $2,475,614, compared to $3,572,820 in 1974 for a decrease of $1,097,206 or 31%. This sharp decrease in taxable value would normally result in an increase in mill levies to meet government expenditures. However, the large increase in taxable value of the Colstrip Project and coal mining development offset the decrease in taxable value and helped reduce the mill levy and property taxes required for the county general fund.

TAXES PAID BY COLSTRIP PROJECT AND COAL RELATED INDUSTRIES

It has been stated that the taxes paid by the Colstrip Project and coal-related industries have not paid their share of the increased tax burden.

However, a comparison between 1968 and 1975 in the Colstrip School District shows the Colstrip Project and coal-related industries have paid nearly 95% of the increase. Included in the term "Colstrip Project and coal-related industries" are The Montana Power Company, Puget Sound Power & Light Co., Western Energy Company, Peabody Coal Company, and Burlington Northern, Inc. (taxatio as to the BN is limited to coal net proceeds).

The following chart shows the comparison in taxes paid by the Colstrip Project and coal-related industries as to the years 1968 and 1975 in the Colstrip School District:

	1975	1975	
	Sch. Dist. 19	Colstrip Project & Coal Industries	Per Cent Col.Proj.
TAXABLE VALUE	$ 22,393,341	$ 20,104,123	89.7%
Prop. Tax Levy	Taxes Levied in S. D. 19	Taxes Paid by Col. Proj. & Coal Ind.	
State - 9.50	212,736	190,989	
County - 24.048	538,515	483,464	
Countywide School - 46.480	1,040,843	934,440	
Elem. School - 9.21	206,243	185,159	
High School - 8.94	200,196	179,731	
98.178	$ 2,198,533	$ 1,973,783	
	1968	1968	
TAXABLE VALUE	$ 1,093,500	$ 269,638	24.7%
Prop. Tax Levy			
State - 8.05	8,803	2,158	
County -49.859	54,520	13,368	
Countywide School -43.850	47,950	11,757	
Elem. School -19.820	21,673	5,314	
High School -21.430	$ 23,434	$ 4,747	
143.009	$ 156,380	$ 38,344	
Increase 1975 vs 1968	$ 2,042,153	$ 1,935,439	94.77%

Consequently, taxes levied in Colstrip School District No. 19 have increased by $2,042,153 and taxes of the Colstrip Project and other coal related industries have increased $1,935,439 or 95%

of the increase.

FORSYTH TAX LEVIES

The mill levy in Forsyth in 1975 was 175.58 mills. This is an increase of 9.9 mills or 6.0% over the seven-year period. This is not a very significant increase in this day and age of high inflation (See Exhibit No. 248).

Other Montana cities of comparable size and population have experienced much higher mill levy increases than Forsyth, as shown below. Also, the Consumer Price Index average has increased to 161.2 in 1975 from 104.2 in 1968, or 54.7%.

City	1975 Mill Levy	1968 Mill Levy	Increase	Per Cent Increase
Forsyth	175.58	165.69	9.9	6%
Boulder	288.77	188.34	100.43	53%
Browning	235.80	164.48	71.32	43%
Fort Benton	234.15	175.47	58.68	33%
Poplar	240.88	198.29	42.59	21%
Red Lodge	218.63	177.56	41.07	23%
Scobey	250.12	200.24	49.88	25%
Whitehall	256.89	161.47	95.42	59%

This lower mill rate has a very favorable impact on the property owner in Forsyth. A comparison of property taxes on a $30,000 house in Forsyth and Scobey shows the Forsyth property owner pays $268 or 30% less than the property owner in Scobey.

	Market Value	Taxable Value (12%)	Mill Levy	Annual Property Tax
Scobey	$30,000	$ 3,600	250.12	$ 900
Forsyth	$30,000	$ 3,600	175.58	$ 632
Savings in Property Tax For Forsyth Home Owner				$ 268

Of the 27 towns in Montana with population between 1,000 to 2,000, Forsyth benefits from the second lowest mill levy of

175.58. Only Wibaux is lower with 167.35 mills.

One of the primary reasons the Forsyth levy has increased only 6% is the impact of the large taxable value of the Colstrip Project and the mining industry. The following is a breakdown of the mill levies on a property owner in Forsyth:

	1975	1968	1975 vs 1968 Increase (Decrease)
State	9.50	8.05	1.45
County	12.05	37.86	(25.81)
City	69.00	43.00	26.00
Countywide School	46.48	43.85	2.63
Elem. School	23.28	15.66	7.62
High School	15.27	17.27	(2.00)
Total	175.58	165.69	9.89

As you can see, the city of Forsyth did increase the mill levy by 26 mills over the seven-year period. However, the county portion which a city property owner is required to pay decreased by 25.81 mills, almost entirely offsetting the city increase. The large taxable value increase of the Colstrip Project and coal-related industries of $19,834,485 contributed greatly to the reduction of the County mill levy.

REAL PROPERTY TAXES - MONTANA POWER, PUGET SOUND POWER, WESTERN ENERGY

It is interesting to note that, contrary to the implication in Mr. Gillin's testimony, the 1975 taxes paid by Montana Power, Puget Sound Power & Light Co. and Western Energy upon land was only a small portion of their total taxes in Rosebud County. Thus, out of a total property tax of $1,725,266 paid to Rosebud County in 1975, only $14,625.36 was assessed against land owned by these companies. And, out of the $14,625.36 figure, $12,188.41 was paid by Western Energy for taxes assessed against the Colstrip Townsite. Of the total taxes paid by these three companies, taxes on land amounted to only .8%.

ROSEBUD COUNTY GENERAL BUDGET

The budgeting process consists of estimating expenses of county government and estimating revenues to pay for the pending costs. The funds necessary to meet county government costs are derived from certain revenues generated in the county such as rentals, license fees, royalties, property tax on motor vehicles, interest on bank deposits and some revenues from the state such as part of the Coal Severance Tax. The remainder of the budget, not funded by revenues, has to be raised by property taxes.

The budget costs may show an increase over a period of years. However, this does not mean there will be an increase in property taxes in the same proportion.

If county revenues other than property taxes increase and taxable values in the county increase, a decrease in taxes on property located in the County could result. This situation has occurred in Rosebud County.

As illustrated in the table below and in Applicants' Exhibit No. 250A, Rosebud County government costs between 1968 and 1975 increased by $2,502,000 or 275%. County revenues other than property taxes increased $2,006,000 or 505%, thus an increase of $496,000 or 97% had to be raised from property taxes.

Taxable value of the County increased by $32,401,000 or 307%. Consequently, the mill levy was reduced 25 mills or 51% over the 7-year period which resulted in savings to the taxpayer.

MR. PETERSON: At this time, the Applicants offer Applicants' Exhibits Nos. 248, 249, 250 and 258.

HEARINGS EXAMINER: Mr. Sheridan, for the record, on the exhibit that was offered by the last witness, did you have any objections to that?

MR. SHERIDAN: No.

HEARINGS EXAMINER: Very well, the record will show that Exhibit 275 is admitted. Mr. Shenker?

EXAMINATION OF MR. CHARLES J. GILDER

Rebuttal, Cross, by Department of Natural Resources and Conservation

By Mr. Shenker:

Q Mr. Gilder, in previous testimony that's been given in this proceeding, Mr. Mogen, from the assessor's office, in Rosebud County, has arrived here with an exhibit that you prepared for him. This time, you brought the exhibits along yourself. Have you talked with Mr. Mogen in advance of your testifying here in rebuttal testimony?

A Not necessarily in advance of this rebuttal testimony. I visit with Mr. Mogen periodically about things in Rosebud County.

Q What's the purpose of those visits, sir?

A We file appraisal data with him and various tax reports with Rosebud County and we visit with the County Assessor and the appraiser.

Q Why do you do that?

A Whenever we purchase a new piece of property, or he wants information from us, as to locations of property in and around Colstrip or anywhere else, we'll visit about those locations and pieces of property.

Q Are you the largest taxpayer in Rosebud County?

A I would say so.

Q In the figures you've brought here today in connection with your testimony, Mr. Gilder, I've looked, but I haven't found any breakout for what you would project to be the taxable value of the city of Colstrip. Have you made any kind of rough approximations in your studies to guide us on that question?

A Not as to the city. Are you referring to lands or the property in the city?

Q Yes, the whole of the incorporated city of Colstrip when and if that takes place will have some taxable evaluation, I assume, for property tax purposes. You agree with that, don't you?

A Yes.

Q I was kind of wondering, with the kind of information that you've generated over recent years, your discussions with Mr. Mogen, supplying him with information from time to time, your knowledge of the values within the area that may be the incorporated city of Colstrip, if you could guide us as to what you think that taxable evaluation would be?

A I have not done a personal study. Upon the incorporation of the city, the boundaries will be set and it will be up to the County Assessor, I suppose, to define the taxable values within those boundaries, and the taxable values and assessments of the homes and the lots within those boundaries. I have not done that.

Q I am sure that Mr. Mogen would want to visit with you on those questions, with the knowledge that you have on such values. You'd be prepared to discuss that with him, wouldn't you?

A Yes, I think at that time we would.

Q And you would expect that he would want to discuss those kinds of things with you?

A Yes, sir.

Q Do you have any kind of a rough ballpark estimate that might be able to guide us at this moment?

A I would think somewhere in the vicinity -- the city boundaries would probably run between two to three million dollars in taxable value.

Q The city of Colstrip, you would expect to be incorporated and operating as a municipal corporation some time reasonably soon, wouldn't you?

A I'm not sure of that. I just can't say.

Q You're proceeding on that assumption, are you not?

A That it will be incorporated?

Q Yes, sir.

A Who is proceeding on that assumption?

Q You, the Montana Power Company.

A Yes, I believe so.

Q Now, as I understand, Mr. Gilder, the general process by which millage levels are determined for property tax purposes, you take the total tax valuation, you divide that into the budget that you have to meet, and the answer is your millage levy, right?

A Yes, sir.

Q Now, if we had a taxable valuation of $2,000,000 and a budget of $2,000,000, that would be a pretty easy one to compute. That would be a thousand mills for your levy, right?

A Yes, sir.

Q And if we had a probably taxable valuation of $2,000,000 and a budget of $200,000, then that would be a hundred mills for the levy, wouldn't it?

A Yes, sir.

Q Now, Mr. Gilder, with all of the services which the properly planned town of Colstrip would be offering, you would concede, would you not, sir, that a budget in excess of $200,000 would be probable and expectable, isn't that correct?

A No, sir, I would not concede that.

Q Oh, indeed. What would you think would be the operating budget for the town of Colstrip after Colstrip units 3 and 4 were built and operating?

A Would you restate that, please?

Q Sure. What would you think would be a probable budget for the town of Colstrip, incorporated and operating, after the Colstrip units 3 and 4 were up and running?

A I really don't know. I don't have any background on the city at that level, of that size. I just don't know.

Q Well, what's the population of Forsyth now?

A Around 2,000.

Q What's the projected population for the city of Colstrip after Colstrip 3 and 4 are built?

A I'm not certain of the exact population.

Q What's the budget of the city of Forsyth now?

A I don't have those figures.

Q Oh, approximately.

A I just hesitate to guess. I don't know what the city budget is.

Q Well, is it less than $20,000 or more than $400,000? What range are we talking about?

A I'd say in the range of four to five hundred thousand.

Q Do you have some reason to suspect that the city of Colstrip, with a population in excess of the city of Forsyth, would have a budget 50% of the city of Forsyth?

A I don't think the city of Colstrip will need the services that the city of Forsyth needs.

Q Oh, indeed -- why not?

A Well, I think the system that is there now, which would be incorporated in the city, would be adequate to maintain facilities, and I don't think the maintenance on that system would be as expensive as it is for the city of Forsyth.

Q What does the city of Forsyth, according to the Rosebud County Planning Board, now have on its Planning Board for expenditures necessary to increase its social services?

A I don't know, sir.

Q According to the Rosebud County Planning Board of 1974, the total was $12,276,000 for ten separate items, ranging from sewage systems through new jail facilities. You wouldn't dispute those figures, would you?

A No, sir. Over what period of time did you say that was for?

Q Well, I didn't say what period of time it was for. The Rosebud County Planning Board in 1974 issued a partial list of projects and estimated expenditures necessary to upgrade social services. There were ten items in that partial list which had a total of $12,276,000. The question that I want to put to you, Mr. Gilder, is, if you assume that the city of Colstrip will have a population at least as large as the city of Forsyth, wouldn't you expect that if the same services were rendered in the city of Colstrip as in the city of Forsyth, it would cost more in Colstrip as a new city, as opposed to an older city, which could get by on its previous existing facilities?

A I think in the city of Forsyth, the figures that you read there, depicting immediate expenditures, are for an older city in which there is going to have to be a refurbishment of many facilities, but if you take the city of Forsyth, I think that many of those services are already there, which Western Energy has put there, and I just don't think it's going to take as many dollars to operate that community as it will Forsyth.

Q I see. You think that if the same services were rendered in Colstrip as were rendered in Forsyth, it would cost less to do it in Colstrip because Western Energy has some facilities there that are going to be cheaper than Forsyth's facilities for operation, is that it?

A You're saying the same services --

Q Yes, sir, that's the assumption that I asked you to make -- the same services are rendered in both communities.

A I say budget-wise, if you did have the same services, and assuming every cost and everything was the same --

Q In terms of budget, you assume that the same services would cost the same thing in both communities, is that right?

A I think so, yes.

Q You don't want this Board of Natural Resources to believe that in your opinion the city of Colstrip would offer only half of the services of the city of Forsyth, if it were the same size?

A If it were the same size --

Q Obviously, it wouldn't be offering only half the services of the city of Forsyth, would it?

A Probably not.

Q Now, with respect to your ballpark estimate that you gave us at my request, of about $2,000,000 taxable valuation for the city of Colstrip, of course, that could not include the power plants themselves? They would be outside the incorporated city limits, wouldn't they?

A I would believe so.

Q Sure. Well, that's the pattern for the Montana Power Company in all incorporated cities. Your facilities are outside the incorporated limits, aren't they?

A What facilities are you speaking of?

Q Your major facilities. The Corette station is outside the incorporated limits of the city of Billings, isn't it?

A That's true.

Q And that's the pattern that you follow in those types of installation, isn't it?

A I don't think that we necessarily dictate that. It's up to the community, where they put their city boundaries.

Q Of course, if you come in after the city boundaries are there, then you have something to say about it, don't you?

A Well, not necessarily; from the standpoint of where we locate our plants, but it's very seldom that we have located a plant within a city.

Q You don't do that? And therefore, the evaluation of those plants could not be within the taxable valuation of the incorporated city itself, right?

A True, yes, sir.

Q Mr. Gilder, just so the arithmetic is clear, if indeed, we had taxable valuations in the city of Colstrip of $2,000,000, and if we assume that the budget of Forsyth is around $400,000, and we assume that the budget of Colstrip is 50% of that, that would be $200,000, then the millage rate of Forsyth would be 100 mills, right?

A Yes, sir.

Q That would be the highest millage rate of any city of that size in the state, wouldn't it?

A There is a limitation on what a city can actually levy. You wouldn't go to a hundred mills on that size of a city.

Q What's the limitation?

A At present, 65 mills.

Q So that would be the upper ceiling and you just wouldn't be able to meet the rest of the budget off the property taxation, if that were the aspect for funding, right?

A Well, if that were the case, but in some of the city budgets, and including, I would assume, in Colstrip, there would be other revenues. Once you determine the budget, they would come in and be deducted from that overall budget, but you're right -- in some cases -- well, cities have to hold down the costs to stay within that millage rate.

Q Sure, and one of the ways you hold down the costs is just to make do without having additional services provided, isn't that right?

A This is true.

Q That's what's been happening in Rosebud County in recent years, isn't that true?

A No, not necessarily.

Q Do you think they've been levying up the full taxable value to meet all budgetary expenditures in Rosebud County in the last several years?

A Well, they haven't had to, in the county.

Q Because they've made do, isn't that true?

A Well, because the taxable value was such that they didn't have to levy up to that limit in county government.

Q At least, they chose not to, right?

A Well, whatever budget they came up with just did not -- there was enough taxable value there to keep it within the county mill rate.

Q Sure, and the budget you come up with is the means by which you make do, isn't it?

A Well, your definition of make do -- I suppose you could say whatever is necessary.

Q That's a judgment made by the folks who have to decide what services they're going to have, right?

A Yes, that's true, whatever services, whatever is dictated by those services, will determine the budget.

Q So the folks who have to make those kinds of decisions, county commissioners, what have you, they make a decision as to what services they will have, and then they determine what the cost of that will be. They take the taxable valuation, they divide that into that portion of the budget which they have to service, and that gives them the millage rate, right?

A No, not in all cases. Once you determine a budget, there are other sources of income besides tax revenue, and you have to take into consideration the other sources of revenue before they determine what is to be taxable and what is to be taxed, raised by taxes. Then they determine the mill levy.

Q Of course. That's why I said that portion of the budget they want to service the property taxes. That's the portion of the budget that will be divided by the taxable valuation to determine the millage rate, right?

A Yes, sir.

Q If you'll turn to page 5 of your statement of testimony, Mr. Gilder, you talk there at line 11 about the taxable value of livestock in Rosebud County, on gross dollars. Another way of looking at the taxable valuation of property is by comparison to the gross cash income of the property owners. That is another way of looking at it, isn't it?

A Would you restate that, please?

Q Sure. Aside from looking at gross dollars, you can look at a comparison between the taxable valuation of property and the gross income of owners of that property. That's a way of comparing, isn't it?

A Yes, you can compare those.

Q If you did that in Rosebud County, you would find that the increases in the taxable valuation of livestock between 1973 and 1974 equaled 5% of the livestock producers' gross cash income, wouldn't you?

A I don't know what the gross cash income of the livestock in Rosebud County is.

Q Well, that figure is in evidence in this proceeding. Let me ask you if you would disagree with the comparison that as between the increase in taxable valuation of livestock equaling approximately 5% of their producers' gross cash income, and the increase in taxable valuation on the Colstrip units 1 and 2 equaling 1.5% of their gross income -- do you disagree with those figures?

A No, I have no reason to disagree with them.

Q Further, on page 5, you describe a comparison between 1968 and 1975, in the Colstrip school district, showing the effects that the Colstrip project and coal-related industries have paid for the increases between 1968 and 1975. If you were to look at the total county of Rosebud, however, you would not find anything nearly that impressive, of the percentage borne by the Colstrip applicants in the increase in total county property valuations, would you?

A It's not as high, no.

Q As a matter of fact, if you look just from the years 1970 to 1975, the county valuation went up by $13,000,000, but the total of all the public utilities' properties, aside from Colstrip 1 and 2 by themselves, that means all of them, including Colstrip 1 and 2, went up only 3½ million dollars, so that would be around 25% of the increase, right?

A Between what years?

Q 1970 and 1975.

A You're speaking of just public utilities?

Q Yes.

A And no coal-related activities?

Q No, we're talking about the operating property of the public utilities. I'll ask you later about some coal relations outside of the operating properties. I believe the figures are that in the 1970-71 fiscal year, the operating property of public utilities were valued at $109,766; in 1974-75, they were taxed for valuation at $3,671,729, or an increase of about 3½ million dollars, whereas the total county figures rose from $12,515,000 to $25,666,000, or a total of $13,000,000, so that the increase for the utilities' share was about 25%, right?

A Yes.

Q Now, let's talk about industrial property itself, Mr. Gilder. You know, do you not, sir, that that property, historically, in Montana, is not subject to appreciation as far as taxable valuation is concerned, true?

A In Montana, it's not depreciated.

Q Does it appreciate in value as years go on?

A As far as assessing property?

Q Yes, sir.

A On a tax basis?

Q Yes, sir.

A It could.

Q Has it?

A I can't say.

Q Have you ever heard of a facility of the Montana Power Company whose assessed valuation appreciated over the years?

A We have certain properties that they have set various increased values on, yes.

Q And you protested those?

A No, sir.

Q Have you ever heard of someone protesting an appreciation on industrial property which was not sustained?

A I think in many cases there's been appreciation of property that was allowed.

Q In industrial property, as opposed to commercial property?

A I just don't have knowledge of anything like that.

Q Let me ask you just a little bit, then, Mr. Gilder, about coal-related industries. You refer many times in your statement, of course, to the fact that you are looking at comparisons of the burden borne both by the Colstrip project and coal-related industries. Do you include within coal-related industries all coal mining activities?

A Yes.

Q Coal handling activities?

A Yes.

Q Coal processing activities?

A Yes.

Q What makes you think, Mr. Gilder, that those activities will not continue in the absence of Colstrip 3 and 4?

A Some of those facilities will continue in the status that they're there now. If 3 and 4 aren't built, there will be no additions to those properties.

Q Oh? You mean if 3 and 4 are not built, the Western Energy Company won't mine any more coal?

A No, I didn't say that.

Q You would expect, would you not, that a wholly owned subsidiary of the Montana Power Company will continue to mine coal and deliver it to whatever place it can deliver it for whatever price it determines?

A Yes, sir.

Q So those coal-related activities and those coal-related industries are really not dependent upon the projection of Colstrip 3 and 4 at all, are they?

A Well, there could be a vast increase in coal facilities and coal activities of 3 and 4 are built.

Q There is a finite amount of coal there, isn't there?

A Yes, there is.

Q So if you ship it to Wyoming or North Dakota or Wisconsin or Illinois or if you take it just eight or ten miles down the rail line into a Colstrip facility, the same amount of coal is going to be mined and delivered, isn't that true?

A Depending on the sales contracts that we can derive and the markets that we can find, there's nothing to say that there will be any increases in coal sales or deliverability of the coal.

Q We can't increase over having developed at all, can we?

A Well, there could be a state where actually sales contracts would be canceled and we may not be in a situation or position to produce as much coal.

Q Sure, if you don't find any buyers in the town of Colstrip, or near the town of Colstrip -- they are sometimes called Colstrip facilities -- then you'd have to go some place else, wouldn't you?

A Yes.

Q Turn with me, if you would, please, Mr. Gilder, to your statement on page 8. There you are comparing a breakdown of the mill levies on a property owner in Forsyth and there you show the increase or the decrease in the millages broken down by the various levies on a property owner in Forsyth between 1968 and 1975.

A Yes, sir.

Q You would agree with me, would you not, Mr. Gilder, that the only element in those categories which would provide any possibility of additional tax relief for a property owner in Forsyth would be in the county millage levy?

A No, I would not say that.

Q Tell me how you could afford additional tax relief on state levies.

A On the state levy, which is the 9.5 mills, that's set by the state. If the value of that property in Colstrip increases, the more taxable value you have there, the more taxes you generate. If enough tax dollars are generated from that source, I think it will have an impact on possibly bringing down that millage. It could drop down to five mills, four mills, whatever.

Q You really think that the state property tax levy could drop from 9.5 mills to 4.5 mills state-wide, right?

A That's true.

Q As a result of building Colstrip units 3 and 4?

A I'm not saying it would; I'm saying it could have an impact on it, as all taxable value would have.

Q The more probable fact is that if the state determined that it had no additional need for services, then the millage rate would drop from 9.5 to 9.4, isn't that correct?

A Well, it could drop any number of mills. There have been some years when the state has determined that it does not even need the total of the six mills, and it's predicated on taxable value in the state of Montana. If we add to the taxable value of Montana, it certainly would have some impact on reducing the mill levy.

Q What is the total percentage of the valuation of the Colstrip units 3 and 4 to the total taxable value of the state of Montana?

A I don't know. I don't have a figure on that.

Q Do you think it's 50%?

A To the total state value?

Q Sure.

A No.

Q So you're not going to cut the state millage rate in half simply because Colstrip 3 and 4 are built, are you?

A No. I didn't say that. I just say it's got an impact on it.

Q An impact will depend upon the state's determination of its need for servicing from property taxes which would then be determined, in turn, by the division of total state taxable value into that portion of the state's revenue need, which would be so serviced, right?

A Yes, sir.

Q Now, let's look at the city millage rate. That's 69 mills?

A Yes, sir.

Q I thought there was a limit of 65 you just told me about.

A In some cities in Montana, there has been a suit brought against the property increases over the 65 mills. In the city of Colstrip, there is some question about levying the other four mills.

Q Will the Colstrip units provide property tax relief on the city of Forsyth's millage rate?

A Are you speaking of just the city budget?

Q Well, that's what you have listed there on page 8, line 8, isn't it?

A Yes, just the city budget. The taxable value will have no impact on that, no.

Q How about the countywide school? Will the Colstrip units 3 and 4 reduce the millage rate there?

A Yes, it can.

Q How much?

A I don't have the figures of how much, but under the Foundation Program in the state of Montana, the taxable value of the Colstrip units play an important part in the Foundation Program of Rosebud County.

Q That's the countywide school budget?

A Part of that countywide school budget is funded from that basis.

Q Well, let's not talk about just the Foundation itself; let's talk about the entire countywide school budget; how much of the countywide school budget is impacted in percentage terms by the proposed Colstrip units 3 and 4?

A I don't know. I don't have any figures on that.

Q How about the elementary school that you have listed on line 10 on page 8? Are Colstrip units 3 and 4 going to provide tax relief for that property owner in Forsyth?

A No, sir.

Q How about the high school in Forsyth? Will the Colstrip units provide tax relief there?

A No, that's strictly a district levy within School District 4.

(MR. SHENKER GOES TO BOARD.)

Q Now, Mr. Gilder, if you will look at the figures I have put on the board, labeled "Mill Levies, Forsyth," there are four years that I wanted to compare with you, the years 1975-76, 1972-73, '71-'72, and 1968-69, you would agree with those figures, would you not?

A Yes.

Q Now those show, don't they,Mr. Gilder, if you compare the years 1968-69 with the next interval, 1972-72, three years up, that you have an actual increase of $196,457 in your taxable valuation or a percentage increase of 15.1%, right?

A Yes.

Q Now, if you look at the actual change in the millage levy over that same period of time, that's gone up only 11.6%, so obviously,the growth wasn't so great that it imposed burdens upon having to meet whatever services they had to meet, right?

A Yes.

Q Now, in contradistinction to that comparison, in 1972, where we have the beginning of Colstrip units 1 and 2 in the area, we see that there is an actual change in taxable valuation, which has gone up for the next comparable 3-year period by 35.3%, or $561,600, but the millage levy now has gone up even greater by 21 mills or an increase of 43.8%. Now, doesn't that tell you that the folks in Forsyth are having difficulty in keeping up with that rate of growth and having to provide services?

A It shows a great percentage in the increase, but I don't say that it's all predicated because of the Colstrip project and the impact of construction in that area.

Q Whatever the activities are in Rosebud County and Forsyth, those are the ones that explain that type of crunch on growth, right?

A Well, there could be some things in that city budget which probably would have to be funded or would have had to be done in any event, not necessarily just because the Colstrip project is there.

Q Well, it's just kind of interesting that if you compare the 3-year periods, the things that had to be done in any event happened when Colstrip 1 and 2 came into the Forsyth area. You don't have any other explanation for that, do you?

A I just don't know if that -- some of these things, I think, were contemplated and probably would have had to be done, in any event.

Q You don't know about that?

A I know of one thing, the sewer system was in a bad state of repair and needed repair, whether there were any more people moving into the area of Forsyth or not.

Q And they need a lot more in the way of sewer work there, don't they?

A I don't believe they need any more than they did contemplate two or three years ago.

Q Don't you know, Mr. Gilder, that under the coal tax moneys that are available now in Montana, the folks in Forsyth have applied for very substantial increased moneys to provide for additional sewage facilities that they believe will be necessary? Didn't you know that?

A Well, they'll get money from the severance tax to do with whatever they want to do.

Q They've applied for it under the regulations that are here by telling the Coal Tax Board what they need the money for, and they've told them they need it for sewage, among other things, substantial money for sewers. Didn't you know about that?

A Well, if they can get the funds from the severance tax, that's all well and good.

Q Sure, but it also means that they weren't able to supply their needs earlier, right?

A Well, not necessarily. If there was no activity at all in the city, no growth or anything else, they still probably would have had to maintain and put funds up to refurbish that sewer system. They probably would have had to put a mill levy on it or seek some other funds from other sources, so I'm just saying that I don't know, and I don't believe that it's entirely from the impact of the projects in Colstrip.

Q If it's not from the impact of the project at Colstrip, then it's from something else that the folks in Forsyth have been looking at over the period of 1968 to 1976, isn't it?

A They could have been looking at it for the last ten years, for that matter.

Q You don't know of any other growth factors in the Forsyth area unrelated to the Colstrip development, do you?

A I don't know of any, no.

MR. SHENKER: We'll offer No. 42 for illustrative purposes.

MR. PETERSON: No objections.

HEARINGS EXAMINER: No. 42 is admitted for illustrative purposes.

Q Next, Mr. Gilder, I am handing you what has been marked for identification as DNRC Exhibit No. 43, which is a commentary on the material that you set forth in your statement of testimony at page 7. We have listed the taxable valuations for the same cities that you have described, along with the percentage change in the taxable valuation from 1968-69 to 1975-76. Along with that, of course, we've set out the millage levies for these particular cities and then show the percentage change in the millage levy from the period 1968-69 to 1975-76. You wouldn't disagree with those figures, would you?

A These pertain to what budget?

Q City.

A City only?

Q Right.

A I don't disagree with them. I don't necessarily agree with them, either.

Q Well, are they wrong?

A I don't know.

Q Well, some of them look awful much like yours, for example, where you said that Forsyth city was 43 mills in '68 and 69 mills in 1975 -- that's what it says on DNR Exhibit 43, isn't it?

A These are mill levies for the city budgets only?

Q Yes, sir.

A Where I state the mill levy is for the total -- it's a total county levy, including all sources, not necessarily just from the city.

Q That's correct. We're looking here at the city budget figures for the eight communities that are compared by you in your statement. Those levies appear to be correct, do they not? You would accept them?

A Yes.

Q What they show, if you'll kind of read through this with me, Mr. Gilder, is that if you compare where Forsyth stood with each of the seven other communities which you selected for comparison in your statement, its mill levy was about at the bottom of those eight communities in 1968-69, right?

A Yes.

Q By 1975-76, it had grown, as had the millage levies in many of the other counties, but the percentage change in the mill levy for the city of Forsyth was far and away larger than the percentage change for the mill levy of any other city that you studied, isn't that true?

A Concerning the city budget only?

Q Yes, sir.

A This is true.

Q And that, of course, is contrasted to the fact that the actual taxable valuation in some cities, for example, Boulder, went up on a percentage change basis, more than the taxable valuation of Forsyth, yet Forsyth's taxable valuation increase was up two-thirds.

A It looks like that's the only city that exceeded it.

Q Right, so Forsyth had a very substantial growth in its taxable valuation. It went up by two-thirds over that period of time, right?

A Yes.

Q And yet even with that kind of taxable valuation growth, it still had to have an even larger spurt in its millage levy over that compared period of time than any other city you compared, isn't that true?

A This is true in the city budgets only; however, in the total budgets, it has not. The city taxpayer has to pay -- the budget has to pay all the levies that are levied in the county, not just the city.

Q Mr. Gilder, you will concede, will you not, sir, that the city budget itself is the reflection on the services which the city has determined are necessary in order to meet the needs of its citizens? Do you agree with that?

A Well, you're referring just to the city requirements, city necessities.

Q That's right.

A There can also be county support and county requirements within that city, so they're not just dependent upon the city requirements. There are also some county requirements.

Q To the extent that the city fathers are trying to meet the needs of the folks who live in that city with the revenues available to them, the city of Forsyth has the toughest crunch of any of the other cities that you compared in your statement, according to DNRC Exhibit 43, isn't that true?

A The largest percentage of increase?

Q Yes.

A Yes.

MR. SHENKER: I will offer DNRC Exhibit No. 43. I think Mr. Gilder may want to have a chance to check those figures during the noon hour.

HEARINGS EXAMINER: Do you have much more on your cross?

MR. SHENKER: I think I have no further cross-examination of the witness at all at this time. Thank you.

HEARINGS EXAMINER: Mr. Meloy, do you want to start your cross before lunch, or do you have considerable cross?

MR. PETERSON: Why don't we take a break, Mr. Davis?

HEARINGS EXAMINER: All right, we'll recess until 1:30.

(HEARING RECESSED AT 12:00 NOON.)

Following the luncheon recess, the hearing reconvened at 1:30 P.M. on March 24, 1976.

CONTINUATION OF EXAMINATION OF CHARLES J. GILDER

Rebuttal, Cross, by Northern Cheyenne Tribe, Inc.

By Mr. Meloy:

Q Mr. Gilder, several times in your statement you repeat essentially what you have on the first page starting at line 23, the line that you say the large taxable values of the Colstrip project and coal mining properties have contributed to significantly lower mill levies. Now since you have conceded to Mr. Shenker that the coal mining activities will probably go on anyway, I would like to examine the utility plant contribution to the taxable valuation that you show on page 6 of 1975 of $20,104,123. How much of that is attributable to utility plants?

A Well, let's see. You're relating to the Colstrip project 1 and 2?

Q Yes.

A Colstrip 1 and 2 would be of that total about 13.8 million.

Q Now that amount of assessed valuation, or taxable valuation, we don't have a breakdown for the taxes paid by coal project as you have totals on your chart on page 6; do we?

A No, I haven't broken that out. I just entered that in total. The total of the Colstrip project plus Western Energy Company, it totals to about 17.5 million with the remainder coming from the other coal related industries in the area.

Q How much of that taxable valuation is net proceeds?

A Net proceeds? I couldn't say offhand; I don't know what Peabody's is.

Q How much was yours, was Western Energy's.

A Western Energy did not file net proceeds in 1975.

Q They didn't? You indicate that the 1975 taxes have been paid on that $20,000,000 taxable valuation. It was due -- when was it due?

A Well, sir, your taxes are due in -- it's your liability for the year 1975, it's your tax assessment that's -- your tax is levied. It's due in the month of October.

Q For half of it?

A This is the Montana law; you pay half your taxes by November 3 and the other half follows in May.

Q Okay, so of the $20,000,000 assessed, or taxable valuation that you are contributing, or more specifically, of the $13,800,000 that is attributable to units 1 and 2, half of that is not due until April of this year; isn't that right?

A Well, it funds the fiscal year budget for government and for schools. Your budgets are also running on a fiscal year basis

Q Well, have you paid that second taxes yet?

A No, we have not.

Q You haven't. Have you paid the taxes on utility plants 1 and 2 for 1974?

A Yes, sir.

Q Do you know what the taxable valuation of the utility plants was in 1974 on 1 and 2?

A On 1 and 2? Yes, sir.

Q How much?

A About 3.8 million.

Q And how about 1973?

A Construction was just starting in that year; the total taxable was about $379,000.

Q All right, so in late 1973 and early 1974 you paid taxes on $389,000; is that right?

A Would you restate that, please?

Q In late 1973 and spring of 1974 you paid your taxes on $389,000 taxable valuation?

A Yes.

Q Then in late 1974 and the spring of 1975 you paid taxes on three and one half million?

A 3.8 million.

Q Yes, okay then in late 1975 and early 1976 you will pay taxes on the $13,000,000; is that right?

A Yes.

Q And all of that comes, the large amount of that tax, comes after the construction has been completed; isn't that right?

A Yes.

Q Now the -- how does one arrive at taxable valuation in Montana?

A Well, if you're speaking of utilities --

Q Yes.

A Regulated utilities are based on a formula basis, for property that's classified as transmission, or single and continuous property which goes through counties, or inter-county property. Property such as power houses, buildings, switch stations, and things like that which are on a situs basis they are classified as intra-county property and taxed within that county, and normally you take 40 percent of the original installed cost, or the cash value of the property.

Q How about units 1 and 2?

A Take 40 percent of the installed costs, and that gets you to your assessed value, and then various components of the plant go into either class four or class two property or possibly class seven. It goes into the different taxable classifications which are set down by Montana regulation.

Q What is the classification which is used for the substantial amount of property associated with the plant?

A Class four.

Q Which is what percentage?

A Thirty percent.

Q Is there available in Montana a special classification for new industry?

A Yes, there is.

Q And what is that percentage?

A It's 7 percent.

Q Substantially lower than 30 percent.

A We do not qualify for that classification.

Q How about Puget Sound, half owner of units 1 and 2?

A It's my understanding that Puget has been issued a determination by the Department of Revenue that they do not also qualify for this.

Q Has that determination gone to the hearing?

A Which hearing are you referring to?

Q I'm talking about the hearing which precedes a final decision from the Department of Revenue?

A I don't know. I don't think that -- if you're referring to a hearing within the Department of Revenue?

Q I'm referring to a hearing which precedes a final decision of that administrative agency?

A I don't know whether they've had a hearing with them or not, no, sir.

Q Well, would it surprise you to know that that final determination has not yet been made by the Department of Revenue on their application?

A Well, I don't know whether it's a final determination, but from what I understand they've been given a determination that they will not qualify for the 7 percent classification.

Q Well, if the final decision of the Department of Revenue were to be that they did qualify, that would place half of the taxable valuation of the units 1 and 2 into a 7 percent category; isn't that right?

A That's true.

Q Who would pick up the additional taxes in that county should that happen?

A Well, Montana Power and its half would pick up a large amount of it.

Q And who else would have to pay those additional taxes?

A Well, I don't know as there would be a great amount of additional tax. You're speaking of taxes that would be levied upon final completion and the values that will be placed on that at that time. Of course, this would lower the mill levy greatly and will in the future, but if they are given a determination of 7 percent, then the residents of school district 19 probably would see an increase in the mill levy.

Q Would you expect that if Puget Sound was successful in acquiring a new industry status that Portland General Electric on units 3 and 4 and Washington Water Power might also be entitled to the same status with regard to their interests?

A I really don't know. I doubt that -- which companies were you referring to?

Q Well, how does one determine whether this is a new industry so that he qualifies for a class of 7 percent?

A Well, sir, on that determination if you're in the same business that you're constructing as a new type of construction, you would not qualify for it, and that's the category that we're in. We're in the electric utility business, and we're constructing --

Q You're not a new industry in Montana; Montana Power is not a new industry in Montana?

A Yes, sir.

Q Well, has Portland General served in Montana?

A Portland, as far as I know, has not, but Washington Water Power has and Pacific Power and Light has, so I doubt that they'd qualify as a new industry.

Q But Portland General might?

A Pardon?

Q Portland General might?

A That's open to speculation. I don't have any way of knowing.

Q Would you expect them to apply?

A I would.

Q Why? Don't they want to provide the taxes to provide the services for the folks in that area?

A Well, I think they would be, as far as a business enterprise goes, they should apply for it if they are, in fact, a new industry in the state, and if they can be given that qualification. The business that they are entering in Montana is not a new business, and I don't know just how the Department of Revenue would look at it.

Q Production of electricity from a coal-fired plant is not a new business?

A Not in Montana.

Q Because of the Corette plant?

A That's true.

Q Did you apply for that special status with regard to the Corette plant?

A We did.

Q One final question, Mr. Gilder; I noticed that when you and Mr. Shenker were talking about the comparison increases on page 6 among Forsyth and seven other cities in Montana, how did you come up with those cities? Did you just pick them out at random?

MR. PETERSON: You mean page 7?

MR. MELOY: Yes.

A Yes, I picked out of a list of so many cities of similar and comparable make-ups for these communities just to see how Forsyth would compare with cities in similar circumstances.

Q Did you inquire to determine why, for example, for the city of Boulder there was a 53 percent increase?

A No, I did not.

Q It wouldn't surprise you to know that Burlington Northern pulled a lot of its equipment out of Boulder a couple of years ago, would it, and that might be the reason why that substantial increase in mill levy?

A It could have been.

MR. MELOY: Thank you, Mr. Gilder. I have no other questions, Mr. Davis.

HEARINGS EXAMINER: Mr. Graybill.

Rebuttal, Cross, by Northern Plains Resource Council

By Mr. Graybill:

Q Mr. Gilder, on the first page of your testimony here today, your written testimony, you make the assertion that it's not true that the ranchers in the Colstrip area have suffered financially because of the development at Colstrip. More accurately you say that their statements that they have suffered are not true. You're familiar with that statement in your prepared testimony?

A I say they have not suffered because of increase in taxes.

Q No, you say they have not suffered financially because of an increase in property taxes due to the energy development at Colstrip. Now the farmers and ranchers of the Colstrip area are concerned about the taxes that they have had to pay, and isn't it true that although there has been an increase in taxes in Rosebud County collected because of Colstrip that it does take awhile for the plant to be built, and that there's a time lag between the time that the construction starts and the time that the property gets on the tax roles and the tax is paid?

A Yes, sir, this is true.

Q And as a matter of fact, that time lag is rather well illustrated, is it not, by your own exhibit through your testimony today, number 248, where you show, for example, that the school district taxes were fairly steady in 1972 and '3, and then they rose dramatically in 1974, and then they receded again in 1975; isn't that true?

A Yes, they have receded in 1975 because of the larger taxable values, yes.

Q But they had to go up in 1974 to pick up for services that had to be rendered to the community because of the increased employment and the increased population; isn't that so?

A Yes, sir, they did raise in 1974.

Q So to the extent that the farmers and ranchers and the former citizens that were there before the Colstrip project have had to increase their taxes to provide lead time money, or to provide services before the property that the power company is building goes on the tax role, to that extent they have suffered financially even though it may not be a continuous loss; isn't that true?

A I was referring to Mr. Gillen's statement that they'd suffered greatly from the years, I think in his testimony he put back to 1966 or '68 when the mill levies were high as 143, and they have not come --

Q I understand that you went back to '68, but my clients think there are two major ways in which they've suffered financially and the first way that they think they've suffered is that demand for services occurs prior to the increase in property valuation, and I think you and I have just agreed that that happens, right?

A No, sir. You say property evaluation? There has been no property evaluation increase on ranchers' property due to Colstrip 1 and 2.

Q No, no, I'm not talking about the increase --

HEARINGS EXAMINER: Now don't interrupt him. If you ask him a question, let him answer.

Q All right. I want us to be talking about the same thing, if we can.

A Yes, sir.

Q Now what they're saying is that they feel there's been a demand for services, such as new schools and other services in the area, police and fire and other things, that has outstripped the building of the projects on which greater property goes on the tax roles, and I thought you and I had agreed a minute ago that there is a lag time between the time that the people come to start building the plant and need services, and the time that the plant gets on the tax roles?

A Yes, sir, there can be that.

Q Right. Now the first place that farmers and ranchers of that community feel that they have paid more taxes is in picking that up in the year or two prior to the raising of the total property values in the county by the placing of the plant on the roll. Do you see what I mean? I'm not talking about raising of anybody's individual valuations; I'm talking about the gross raise in the property values in the community. Do you see that point?

A Yes, sir.

Q And you do agree with me that there is a short term, at least, financial loss suffered by people who provide more services before the utility's property goes on the tax rolls?

A Well, I can say that their mill levy during that period of '73 did increase.

Q Yes.

A However, I think we can also see the great decrease that's occurred in the period from '74 to '75, so they've benefited greatly from the increase in the property values of Colstrip 1 and 2. Also during that period of time, Western Energy installed classrooms to absorb some of the impact of the student increase. I don't recall the exact cost, but I'm sure it was in excess of $200,000 to install some mobile semi-permanent classrooms to take care of the excess, or take care of the influx of new students.

Q Well, now I understand, Mr. Gilder, that you also prepared Exhibit number 223, which Mr. Mogen, is it, put into evidence. You're familiar with that exhibit, 223, total Rosebud County taxable values?

A Yes, sir.

Q Now that does not show a drop in real estate and improvements taxable valuations, does it, between '70 and '75?

A No it does not; no, sir.

Q And it doesn't show a drop in other personal property valuations between '70 and '75, does it?

A No.

Q So that granted that it shows some increases in public utility valuations, it really doesn't show, it shows rather an increase in other peoples' property, too, doesn't it?

A I would say, although we don't have a thorough analysis of it, the increase has been -- a great deal of it has come from people moving into the area, the people that work at Colstrip and at the Peabody mine, homes that they have erected, vehicles that they drive, property that they own, has gone into that figure, which has helped increase it. It has not been a large taxable value increase of farmers and ranchers in the community.

Q Even the figure for livestock, which would surely not be attributable to the construction workers, has increased from 1970 to '75, hasn't it, substantially?

A No, sir; livestock has not increased from '74 to '75?

Q No, I said from '70 to '75. Obviously it's going up and down in one year depending on the market.

A Oh, from '70. The main reason for that is the average price that they come up with, the price in cattle over the past five years.

Q Well, as a matter of fact, if we want to examine livestock, it has gone up every year until '74 and then it dropped in '75 when the market dropped, but it did not drop back to the '70 or '71 or '72 level, did it?

A No, sir.

Q So, in fact, other peoples' property has gone up during this period, too, hasn't it?

A Based on market value of cattle, yes.

Q So don't you agree with me that there is a lag time during which the local citizens that were there first have had to pick up these services and pay taxes to cover them before the newly created property goes on the tax rolls?

A To a slight degree there has been one year of lag time.

Q Now a second problem that the farmers and ranchers are interested in is one that was testified to here by Mr. Morissett, the school superintendent at, I think, Rosebud or some little town a little ways away from Colstrip; and he pointed out that there's an increased demand for services in some of the outlying districts without an increase in the property values in their particular school district, so that his school district has to perform more services, but doesn't have any higher tax base. Haven't you noticed that phenomenon?

A Yes, sir.

Q And to that extent the farmers and ranchers in his community are having to pay more taxes because of the influx of population due to the Colstrip project, aren't they?

A Yes, they would in some surrounding districts, but they would also benefit from the school foundation program which the tax from the Colstrip project will have an impact on.

Q Well, as a matter of fact, the school foundation program of that county may be improved, or the tax situation may be improved, or lessened depending on factors far removed from Colstrip, such as the economy of other parts of the state of Montana, right?

A Not the foundation program.

Q Well, as a matter of fact, didn't the new constitution require and the legislation that followed the new constitution require a base taxable valuation, or a base tax, on all --

A The base level?

Q The base level tax on all parts of the state, and some parts gained and some parts lost, didn't they?

A Rosebud County is now in the position of a gain.

Q But that gain then -- by gain you mean it would pay more taxes or less taxes?

A Because of the project, the project will be paying more taxes based on a 40 mill levy.

Q Well, as a matter of fact, the school district here in Helena is going to be benefited by that, too, isn't it? In other words, any increase in state taxation is beneficial?

A To some extent, yes.

Q To some extent, right.

A The rancher would pay 40 mills whether Colstrip project was there or not.

Q Do you know what the effect of the constitutional change and the change in the foundation program that required the base level taxation, do you know what effect that had on Rosebud County?

A In the year 1975 the foundation program of Rosebud County is fully funded in both the elementary and the high school which leaves some excess to go to the state of Montana, which in turn would be used to be dispersed to other counties in the state. I don't have the exact figures.

Q So that Rosebud County only had to raise the base amount because it has enough taxes of its own, and it didn't have to raise extra amounts, extra levies; is that right?

A It can fully fund its foundation program, yes.

Q And to that extent Rosebud County has been helped really by the constitutional change; is that true?

A It's been helped not necessarily by the constitutional change, but by the --

HEARINGS EXAMINER: You want to object on the grounds that's self-serving?

MR. PETERSON: Yes, that is self-serving. There is nothing in the constitution about Colstrip units 1 and 2 that I know of.

MR. GRAYBILL: There's a good deal in there. Do you want me to tell what's in there as an aside hereto, Jack? You ought to read the environmental article.

MR. PETERSON: I probably would.

MR. GRAYBILL: I'll try not to read that into the record, Jack, if you'll give me my cross-examination back.

HEARINGS EXAMINER: Well, I objected really; it wasn't his fault really.

MR. GRAYBILL: I understand.

Q Well, let's move onto another matter, Mr. Gilder; in Exhibit number 223, which you prepared for Mr. Mogen, you've shown certain increases in public utility taxable valuations in Rosebud County. I note that there's another major increase in the taxable valuations in Rosebud County besides public utilities under net proceeds tax. Do you see that figure of $11,609,000 in 1975?

A Yes, sir.

Q And the fact is that that has increased since 1970 probably as much as the tax on public utilities; isn't that so?

A No, no, it's not so.

Q Well, the tax -- certainly it's increased greatly since 1970 in addition, right?

A Yes, sir, I would agree to that.

Q Now do I understand you to have told Mr. Meloy that in 1975 in that $11,609,000 of net proceeds which in your exhibit you denominated oil and coal, that the Western Energy Company paid absolutely no net proceeds tax?

A Net proceeds for 1975 is based on '74 production; you file a net proceeds form on '74 production.

Q And how much net proceeds --

MR. PETERSON: Wait a minute; he hasn't finished yet.

MR. GRAYBILL: Oh, I'm sorry.

A The method of filing is based on certain requirements set down by the Department of Revenue; based on revenues and expenses and depreciation you file this form. Western Energy was in a position of having a negative net proceeds in the year 1975, and therefore, paid no tax on net proceeds. Also their net proceeds law has been repealed as far as coal is concerned in 1975.

Q I understand that, so in answer to my question, the fact is that none of the $11,609,000 worth of taxable valuation in 1975 under net proceeds is represented by Western Energy, Montana Power, or the applicants here; isn't that true?

A Yes, that's true, under net proceeds.

Q How much of that $11,609,000 is represented by the oil industry in Rosebud County, if you know?

A I don't have a breakdown of the total value.

Q Well, I checked the Department of Revenue this morning, and I found that $9,290,878 of that $11,609,000 is from the oil industry. Does that seem logical to you; would you accept that figure?

A I couldn't dispute it; I don't know if it's right or not.

Q That's what Ken Morrison of the Department of Revenue informed us this morning, and that $2,300,000 of it was from coal other than Western Energy. That would mean other coal companies in the county besides Western Energy; is that right?

A Yes, sir.

Q So that that whole $11,000,000 worth of taxable valuation is really not attributable to Colstrip at all?

A It's attributable, like you say, over $2,000,000 of it to coal in the -- due to Peabody's mining, but it's not attributable to Western Energy.

Q Right, the Peabody Company has nothing to do really with the Colstrip project, does it?

A No, sir.

Q So that of the $43,000,000 worth of taxable valuation in Rosebud County in 1975, 11.5 million dollars of it is attributable to other major industrial gains in the oil fields and in Peabody's Coal Company rather than Colstrip?

A Yes, sir.

Q Now in 1974 the net proceeds tax shown here is, of course, for the year 1973, and it's $6,600,000 in 1974, and would you accept Mr. Morrison's figures that $3,789,000 of that came from the oil and gas industry?

A I would not dispute it; I just don't know what it is.

Q Now on page 1 of your statement, let's assume for a moment that there have been some decreases in mill levies in Rosebud County, and while Colstrip may have contributed significantly to lowering these mill levies, you'd have to agree with me, wouldn't you, in view of the fact that this $11,000,000, really one fourth of the taxable valuation in 1975, is not attributable to Colstrip, that a great deal of the change in mill levies is really attributable to the oil industry and to the Peabody Coal Company; isn't that true?

A It has an impact, yes.

Q All right. Now the next thing I want to examine with you is your chart on the top of page 2 where you're discussing the trend in mill levies, and, Mr. Gilder, you started with the year 1968. Are you aware that just prior to that in 1965 the mill levy in Rosebud County rose dramatically because of the Cheyenne housing project?

A No, I'm not aware of that, sir.

Q And are you aware of the fact that in 1966 the mill levy rose also dramatically because of a school bond issue that went on the books that year, and again in 1967 that there was another school district 19 bond issue that raised their levy? Were you aware of that when you made your chart?

A I'm aware of the bond issue, but I did not go back and analyze it. The bond issue is still being paid off, so it's reflected in the current mill levy.

Q Well, you show in 1968 a mill levy in district 19 of 143. Do you realize that in 1960 that mill levy was only 75?

A No, sir, I did not go back that far and analyze it.

Q And in 1961 it was 75.6; did you know that?

A No, I did not.

Q Or in 1962 that it was 84.3, and in 1963 it was 84.9, all figures significantly below the 1975 tax rate, tax levy rate; did you know that?

A I was not aware of that, no.

Q That in 1964 the level was 85.2, which was still below what it was in 1975; did you know that?

A No, sir.

Q Then in 1965 because of the Cheyenne housing project it jumped to 106.5, and in 1966 because of the school bond issue plus the housing project it jumped to 118.4, and in 1967 because of the school books bond issue it jumped to 134.2. Were you aware that those rates were really a lot lower than you show them on your chart in the years prior to the three local issues that had been placed on the tax roles?

A No, sir, I really didn't have any reason to go back and look to see what they were at that time. I went back to the year of 1968 simply because that was the first year that Western Energy purchased anything in Rosebud County, and we had no property or impact of any sort prior to that time. I think the school bond issue that you're referring to is something the residents of Colstrip at that time wanted to do and passed the bond issue and put it on the tax rolls at that time.

Q Don't you know that the 1966 school bond issue was in anticipation of opening up of the Western Energy Company mines and the Peabody mines?

A I don't think it had anything to do with that, sir. We didn't even purchase any property in Rosebud County until 1968.

Q All right. If the figures that I have given you are correct that in 1960 through 1964 the mill levies were in a range of 75 to 85, then the fact is that in that period and before the school change the levies were, in fact, lower than they are even now after the impact at Colstrip; isn't that true?

A Well, that wouldn't surprise me.

Q And then one of the reasons that the levy, for example, in 1975 could drop to 98 would have to be, wouldn't it, that there was $11,609,000 worth of net proceeds tax available in that year? Wouldn't that tend to drop the levy?

A It would have an impact on it, yes, sir.

Q And so that whole one quarter of the taxable valuation of Rosebud County, which you've already agreed with me was not attributable at all to Colstrip, would be one of the major reasons, would it not, that the tax rate dropped in 1975?

A It would be one of the reasons, but the major reason is the taxable value of Colstrip 1 and 2 and the mining properties; it's by far greater than the net proceeds.

Q Well, the public utilities' tax, according to your own Exhibit number 223 rose approximately 10,000,000 between 1974 and '75, didn't it?

A Yes, sir.

Q So if we grant that whole 10,000,000 to the Colstrip project, it would still amount to less of the taxable valuation in 1975 than the 11,000,000 accounted for by the oil industry and Peabody, wouldn't it?

A Well, I think you'd have to take the other 3,000,000 that's -- 2.5 million that's increased in the other personal property which is mainly mining property of Western Energy also.

Q Well, the other 3,000,000, according to your text, comes, or the other I don't know how much, but part of it comes from Montana-Dakota and Burlington Northern and all the other local industries, local public utilities. You're not the only public utility in the county, are you?

A No, Burlington Northern is also in the county and MDU.

Q Well, I won't worry about the other ones. Do you know what proportion of the 13,800,000 that's shown in 1965 is directly attributable to Colstrip?

A Yes, the Colstrip project is responsible for --

Q 13,504,000, I see the footnote.

A Yes, 13,504,000.

Q So in other words, if Colstrip contributed 13,504,000, and if the oil industry and Peabody contributed 11,609,000 then actually they're fairly close; it would be a matter of 4,852 percent in the amount that they contributed to lowering the tax mill levy, wouldn't it?

A Well, the net proceeds has gone up about 5,000,000. The Colstrip property, the project, has gone up approximately 10,000,000, so it's gone up double what the net proceed has gone up.

Q I see. Now you've done an extensive examination of Mr.

Gillen's taxes. I note on page 3 of your exhibit, or of your testimony, that Mr. Gillen's improvements increased by $155.00. You don't know what that's for, do you?

A That's the amount the tax has increased, sir.

Q Yes, the taxes increased $155.00 between 19, whatever it was, '68 to 1975?

A I don't know exactly what it was for. It would either have to be in purchase of farm equipment or improvements on his property.

Q Right, it could be a fence, or it could be an addition to the house, or it could be a barn?

A Yes, sir.

Q And then I notice that the taxable valuation of the land remained the same, but he saved $136 because the mill levy went down?

A Yes, sir.

Q So he's really just about even on his land value, isn't he, land and improvements?

A Yes, sir.

Q He saved $136.00, but he spent $155.00.

A There's been no increase in the taxable value on his land.

Q And at the top of page 4 where you say the presence of the Colstrip project actually helped reduce Mr. Gillen's property tax, actually the oil industry helped to reduce Mr. Gillen's property tax, if it was actually reduced?

A No, not in Mr. Gillen's case because I think you'll find upon close examination that most of your oil industry is not in school district 19. It's in a different school district so

Mr. Gillen is not affected by that.

Q I see. Other people in the county would be helped entirely by the oil industry and not by the coal industry, but in this case Mr. Gillen would be helped by the coal industry and not by the oil industry?

A That's true, yes, sir.

Q I see. Where did you find -- I've reread Mr. Gillen's testimony here. Where do you find Mr. Gillen saying that Colstrip caused the taxable value of his cattle to go up? At the bottom of page 4 you say that you want to erase any such implication, but I can't find that Mr. Gillen ever said that Colstrip caused his cattle price to go up?

A I don't have a copy of Mr. Gillen's statement.

Q Well, we would both agree that --

A He said that his taxes have gone up because of the Colstrip project.

Q Right, and we would both agree that as the market value changes on his cattle, the taxable valuation of the cattle is also going to change, and therefore, his tax is going to change, right?

A Yes, sir.

Q Now we all know that there's been a fluctuation between 1974, '75 and '76 of cattle prices; they went way down and they're now climbing back up again, right?

A Yes, sir, and that's the reason, mainly, why Mr. Gillen's property taxes went up.

Q It's also the main reason they went down, too, isn't it?

A It had some impact on it.

Q Yes, okay. And on page 5 where you discuss the fact that the taxable valuation of livestock has dropped from 3,500,000 to 2,400,000, you'd agree with me, wouldn't you that that reflects a market change not anything that Colstrip did?

A That's true, yes.

Q In 1968 on page -- on page 7 you show in 1968 that Forsyth's mill levy was actually lower than most communities. You show also that it's lower than most communities in '75, and I understand the point of your chart to be that there may have been some benefit from the coal industry and the building of the plant; but how do you account for the fact that it was one of the lowest ones in 1968?

A I don't have any background material to substantiate it, and I don't know what accounts for it. The thing that I was trying to prove is that, trying to show, is that over that period of time the increase in the mill levy has been about 9.9 or 6 percent where other communities have suffered a much more substantial increase in mill levy.

Q Well, are you familiar with the fact that Rosebud County has had an oil industry of some magnitude for many, many years?

A Yes, I'm aware of that.

Q And couldn't that be one of the impacts on keeping the mill levy low in Forsyth?

A To a slight degree it's had an impact on it.

Q And certainly, as we just demonstrated a few minutes ago, the oil industry has recently added greatly to the net proceeds tax in that county influencing the lowness of the mill levies, right?

A It's increased about $3,000,000; it's had an impact on it, yes.

Q Well, let's not let that error stay in the record. I just read you figures from the Department of Revenue that I think you agreed with me with showing that in 1974 based on '73 operating figures the oil and gas industry had $3,700,000 and in 1974 they had $9,290,000. Now that's roughly a $6,000,000 increase in the last year, isn't it?

A You're just speaking of oil and gas?

Q I'm talking about oil and gas.

A Yes.

Q Yes. So oil and gas has made significant increases through its net proceeds tax in Rosebud County; it's made significant contributions to the tax base there, hasn't it?

A Yes, yes, sir.

Q Are you familiar with the fact that the net proceeds tax on the coal extracted in Rosebud County on a per ton basis declined steadily in every year from 1968 through 1973?

A Would you restate that, please?

Q Well, the net proceeds tax on a per ton basis declined every year from 1968 to 1973, didn't it? In other words, per ton taken out of the county, or per ton taken out of the ground, the county got less and less per ton every year as the mines were opened up, didn't they?

A It could have, yes. The tax per ton decreased because of the mill levy decreasing probably, and it could be the value of the coal.

Q Now I'm talking about the net proceeds?

A Yes, net proceeds is taxed as regular property in the county just as any other piece of property is. The mill levy is applied against the net proceeds value; if it goes down, the taxes go down.

Q Well, have you got figures showing that the mill levy went down every year? What chart is that? I don't have that before me. I have school district 19 and 14 and Forsyth, but do you have figures to show that the Rosebud County mill levy went down every year?

A Well, most of your net proceeds are in -- now we're speaking of coal?

Q Yes.

A And that's all in school district 19. You say that it's gone down every year since when?

Q Now I showed you a set of figures developed by the Montana Energy Advisory Council contained in their information packet issued December 1974, and the table 8, which I've reproduced here, shows the net proceeds tax on the Western Energy Company and the Peabody Coal Company for years between 1968 and 1973; and if you'll look to the second to last column, you'll see that the net proceeds tax per ton dropped every year, and you've ascribed that to the drop in the mill rate, but the mill levy figures shown on your Exhibit 248 don't drop every year?

A Yes, that's true.

Q In fact, for school district 19, in fact, they're lower in '72 than they are in '73, and so forth; you see?

A Yes.

Q So what I'm saying is isn't it true that the coal industry, Western Energy and the Peabody Company there, really produced less and less revenue per ton as more and more tons were produced?

A Yes, this is true. If you look at the production costs per ton, you can see that those are increasing.

Q Right.

A Royalties are increasing, and those are deducted from growth revenues to get down to a net proceeds level.

Q It's a function, is it not, of re-investing money in the mine and developing the mine?

A That's true.

Q But the fact is that in the period from 1970 up until now, which you studied in your exhibit 248 and in the one that you prepared for Mr. Mogen, 223, that in that period the revenue per ton actually was declining, and the only way the tax revenues went up was by mining many more tons, isn't that true? The net proceeds tax went up because many more tons were mined?

A Well, the net proceeds in school district 19 due to coal actually would have gone down, and presumably this would, if everything remained the same, this would -- and government and school costs were going up, this would raise the mill levy. With the net proceeds value going down, it lowers the total taxable value of the school district, and therefore, would in theory, it would increase the mill levy; but due to the increases in taxable value of the project, it offset that leading to a lower mill levy.

Q Right. In other words, the fact of the matter is that the coal part of the project was actually exerting a negative influence, or it was raising the amount of money that the -- was raising the mill levies?

A But it was offset by the increased values of the project.

Q But it was offset by the value of the plant which was being built, right?

A Yes.

Q So that we now have learned that not only didn't the coal industry, or the Colstrip and associated industries as a whole, provide all of the tax rate relief that the school district has experienced, but we find that the coal part of it actually was acting in a counter-productive manner?

A In school district 19.

Q In school district 19, which you examined; that's, of course, Colstrip, isn't it? So if it hadn't been for the building of a large plant there, the fact is that the taxes would have had to go up quite a bit, wouldn't they, on the rest of the land, on the rest of the taxpayers?

A If it wasn't for the fact that the plants were built, or are being built, the tax would increase; is that what you're saying?

Q Yes, the tax rate would increase.

A Probably so.

Q So that we've now discovered that it isn't really the coal part of the business, it's the plant building that has tended to relieve the tax mill rate?

A Well, I think you're looking at only one segment of the coal industry. The net proceeds is one segment of it; however, the tangible property, the mining equipment, has contributed to the taxable value.

Q I see.

A It's not just the net proceeds. This is true of Peabody's equipment.

Q Well, didn't the legislature after it saw this trend do something about the net proceeds tax on coal?

A They repealed it.

Q They repealed it, but unfortunately they didn't repeal it in such a way that you could say thank you very much like Mr. Peterson. They repealed it and did something else, too, didn't they?

A That's true.

Q What else did they do?

A We now have a coal severence tax, and we'll also have a tax on gross proceeds of coal.

Q So they changed it from a net to a gross tax, right?

A Yes, sir.

Q And in other words, eliminated the deductions that had been computed before and which in 1975 had actually wiped out the coal net proceed tax for Western Energy Company, right?

A Yes, sir.

Q So the legislature is probably the one that we should thank in the future for the fact that the taxes don't go up, tax rates don't go up, wouldn't you say?

A On the coal.

Q On the coal.

A On the coal it will have that impact.

Q And if you examine your Exhibit 248 with me for a minute, in the period from 1972, I think that's when they started building the plant; isn't that right, '71 or '72?

A I think actual construction started in '73.

Q Well, in the period from '72 through '73 through '74, the fact is that the elementary and the high school levies were rising in school district 19, weren't they?

A One of the reasons being that the Montana legislature passed the act whereby there will be an overall county levy of 40 mills on property. If that was not in effect, the mill levies would be much lower in '74 and '75.

Q Well, these mill levies, nevertheless, were rising in the period that the plant was being built, right, and before the plant's valuation came on line, so to speak, on the taxable valuation sheets, right?

A In '73 and '74 they rose, yes.

Q Because we find on your chart, on your exhibit number 223, that, in fact, there wasn't a great deal of plant. There was only, you know, the plant really wasn't a factor in 1972 and '73, and it wasn't until '74 and '75 that the plant became a factor in taxable valuation, isn't that so?

A Yes, that's true.

Q So we've again pointed out to ourselves that the tax rates were rising before the plant went on the taxable valuation sheets causing the farmers and the ranchers who were paying taxes in the years '72, '73, and '74 to have to pay higher taxes, right?

A To a slight degree.

Q Well, to whatever degree the mill levy times their valuation, their value of their property,made them pay, right?

A Yes, sir.

Q And as far as the ranchers are concerned, until 1975 their cattle prices had been increasing, and in the year 1974 they had the highest cattle assessed values that they'd ever had in the county, hadn't they?

A Which would tend to increase their taxes.

Q So they really tended to pay more taxes based on the higher value of their property and the higher mill rates, right? And at the same time that that was happening, according to proposed Exhibit 20, the net proceeds taxes from coal were dropping; is that true?

MR. PETERSON: I'll object to that as being an incorrect statement of the record; it's the net proceeds per ton while Mr. Graybill's question now was the net proceeds taxes were dropping. There's a difference.

Q Well, let's take them separately. The net proceeds per ton was dropping, wasn't it, according to Exhibit 20? That's the second to the last column that we examined before. In fact, between 1968 and 1972, or '73, it was less than half as much per ton, wasn't it; isn't that true? I haven't heard an answer.

A What year are you looking at, sir?

Q I'm saying that in the same years, 1972, '73, and '74, that your Exhibit number 248 shows the school district mill levies rising, that we find the net proceeds per ton from the coal dropping?

A Yes, that's true, and in the year '75 when we didn't pay any net proceeds the mill levies still took a terrific jump.

Q Right, and so then I want to ask you that second question, and that is that while we really don't have before us evidence from which we can show what happened in '72 and '73, we certainly know that between '72, '73, and '74, the figures of which were reported in '75, that, in fact, the gross net proceeds were dropping, weren't they, or the amount of money raised by net proceeds as far as Western Energy Company is concerned was dropping, right?

A Yes.

Q Because you know that they did pay some tax in the year 1972 and '73 and they paid -- or for the years 1972 and '73, they are paid a year later, and, in fact, they paid none for 1974, right?

A No, for 1974 they did pay a net proceeds tax.

Q I'm talking about the operational year '74 paid in '75 that they didn't pay any for, right?

A In '75 there was no net proceeds, yes.

Q All right. So that as between the ranching industry, which is paying increased taxes, and the coal industry, the coal people were really paying a declining tax during that time; isn't that so?

A The rancher was paying a declining tax also.

Q Well, he wasn't paying a declining tax on his cattle until the year 1975. Up until 1974 he paid more, didn't he, because his rate went up and his valuation went up?

A I misunderstood you; in '74 he did, yes.

Q Yes, okay. And the plant was not on the records at all in those years significantly, was it?

A Not until the year 1974.

Q Okay. Now another thing I'd like to look at with you on Exhibit 248, you said in your text that the mill levies were dropping, and it's true they dropped the last year or two, but the state levy really hasn't dropped significantly since 1968, has it; it's actually higher than it was in 1968?

A That's true, yes.

Q And the countywide school is actually higher than it was in 1968, isn't it?

A Yes.

Q And until the year 1975, for every year up until then, well, let's put it this way. The 1974 levies were really higher than the 1968 levies in the elementary school district, too, weren't they?

A In the elementary district they were higher; in the high school district they were lower, about four mills lower.

Q And if you look at Rosebud itself, Rosebud County, city of Forsyth rather, school district 14, the same thing is true. The state rates are really higher in '75 than they were in '68, isn't that right?

A Yes, that's true.

Q And the city rate is higher, as Mr. Shenker demonstrated, isn't it?

A Yes, that's true.

Q And the countywide rate is higher, isn't that true?

A Countywide rate is lower. The county government you're speaking of?

Q No, the countywide school district.

A Oh, countywide school.

Q Would be 3 as against 46, right?

A Would be about 3 mills higher, yes.

Q And the elementary school district is higher, right?

A Yes.

Q So that 4 out of the 6 are higher, and the other two are not very much lower in 1975 than they were in 1968 in the city of Forsyth; isn't that so?

A Well, I think that if you look at the county drop of approximately 26 mills, it's a significant drop.

Q I think that is a significant drop, and that's the one that we've examined as being partly due to Colstrip being built, but also partly due to the oil industry, right?

A Yes.

MR. GRAYBILL: I think that's all I have, Mr. Davis, except I'd like to move the admission of Exhibit 20.

HEARINGS EXAMINER: Any objection, Mr. Peterson?

MR. PETERSON: I have no objection.

HEARINGS EXAMINER: Exhibit 20, Northern Plains, admitted. Redirect.

Rebuttal, Redirect, by Applicants

By Mr. Peterson:

Q Mr. Gilder, with regard to the Northern Plains Resource Council number 20, which is the net proceeds tax data, the net proceeds per ton is computed, is it not, by simply dividing the number of tons for each year into the net proceeds excluding royalty figure?

A Yes, I think it is here.

Q And so the fluctuation in the net proceeds per ton would not only depend upon the gross price per ton, but on the production, would it not?

A Yes, and there was a decrease in 1973.

Q Right. Now with regard to this so-called time lag for which the ranchers say that they had suffered because of the payment of taxes while they waited the plants 1 and 2 to get on line, my inquiry now is will the ranchers and farmers suffer from 3 and 4 construction considering that 1 and 2 have already been constructed and put on line, and that they are on the tax roles, and that the workforce for 3 and 4 will not significantly increase from 1 and 2?

MR. GRAYBILL: To which I object as speculative and calling for an opinion about the future I think.

HEARINGS EXAMINER: Overruled.

Q You can answer.

A Yes, I think in the future with the total taxable value of 1 and 2 on line, and if the construction of 3 and 4 is granted, the number of students that are projected for school enrollment will not increase to a large degree. Consequently, with the larger taxable values, the mill levies should come down significantly. There's already been a drop to some degree in the school budgets from the year '74-'75 to the year '75-'76. So I don't think that there should not be a great -- there should be a decrease; there should be no impact because of 3 and 4.

Q Now with regard to the Department of Natural Resources Exhibit 43, it is shown on there that the city taxes for the various towns including Forsyth, and I think you've also noted in your testimony that those city taxes now are 69 mills for the last year?

A Yes, that's true.

Q Are not those city taxes included in the countywide levy for Forsyth of 175.58 mills, which you show on page 7 of your statement?

A Yes, that's true. They're a part of the 175 mills that a resident of Forsyth has to pay.

Q So if you live in the city, you're paying 175.58 mills taxes for '75?

A Yes, yes, that's true.

MR. PETERSON: Nothing further, Mr. Davis.

HEARINGS EXAMINER: Do you have any objections to DNR Exhibit number 43, Mr. Graybill?

MR. GRAYBILL: No.

HEARINGS EXAMINER: Very well, DNR Exhibit number 43 is admitted. I don't have a copy of it, however, to put in the record. Mr. Shenker, you may re-cross.

Rebuttal, Re-cross, by Department of Natural Resources and Conservation

By Mr. Shenker:

Q Just one question, Mr. Gilder. You don't want the Board of Natural Resources to believe, do you, sir, that the lag time that you described prior to Colstrip 1 and 2 will not occur prior to Colstrip 3 and 4?

A I don't think, sir, that there will be the impact that there was in lag time on 1 and 2.

Q One certainly hopes not?

A Well, you can be fairly certain there will not be because of the large taxable values that are in Rosebud County, in Colstrip school district 19 at this time.

Q Well, I'm going to have to ask you a little bit more about that then. Let's make sure that we're clear. You believe there will be a lag time, of course, between the commencement of construction for Colstrip 3 and 4 and the time that those plants will be put on the taxable roles, right?

A Oh, definitely there is a lag time.

Q Sure, no doubt about that; that happened before Colstrip 1 and 2; it will also happen before Colstrip 3 and 4, right?

A Yes.

Q Okay, now you also believe, do you not, that the Colstrip units 1 and 2 have not as a result of going on the tax rolls solved all of the possible problems anticipated for Colstrip 3 and 4 services necessary?

A If I understand your question correctly, it will certainly alleviate any impact that 3 and 4 would have.

Q Of course, when you put a few more million dollars worth of stuff on the tax rolls in the county, that's going to help, but you don't want the board to believe that that's going to solve all the problems, and we can walk away and forget it, do you?

A I think with the number of people who are, for example, when construction of 1 and 2 is completed, the workforce is terminated. Approximately the same number, with a slight increase in employment, will be employed on the construction of 3 and 4, and the number of students projected for enrollment will not greatly increase. Therefore, the costs should not be that much greater on county government.

Q Well, that really doesn't speak to the question as I put it to you, though, it seems to me, Mr. Gilder. We've heard an awful lot of testimony in this proceeding about how one of the big booms of Colstrip 3 and 4 is that it's going to provide a lot more jobs and permit the town to grow. Now isn't that going to happen?

A I think it will, yes.

Q Yes, well, those facts, if they are facts, of employment growth and town growth will require service growth, won't they?

A Yes, to a certain degree.

Q Sure, and Colstrip 1 and 2 haven't provided all that is necessary to fund those service growths, have they?

A Not entirely, no.

MR. SHENKER: No. That's all, thank you.

HEARINGS EXAMINER: Mr. Meloy?

MR. MELOY: No questions.

HEARINGS EXAMINER: Mr. Graybill?

MR. GRAYBILL: Well, I just have a couple of quick questions.

Rebuttal, Re-cross, by Northern Plains Resource Council

By Mr. Graybill:

Q Did the Montana Power's tax rates drop in 1975?

A In what regard, sir? In Rosebud County?

Q Well, you've been talking about the benefits of Colstrip to the farmers and the ranchers. I'm wondering if it isn't the Colstrip expenses that contribute to the $5,000,000 net decrease in Montana Power's income taxes between 1974 and '75; is that true?

A I don't have anything on income taxes.

Q Well, don't you know what happened to Montana Power's taxes on operations in 1974 as against '75, or vice versa?

A Yes.

Q And don't you know that Montana Power paid approximately $5,000,000 less taxes in 1975 than it did in 1974?

HEARINGS EXAMINER: Is this income or property tax?

MR. PETERSON: It's income tax.

HEARINGS EXAMINER: All right, I'm not going to permit us to go in on redirect on income tax. It's not been brought up on rebuttal or cross or anything else.

MR. GRAYBILL: Well, it says tax on operations; I don't know if it's income or what it is. That's what I'm asking.

A I think if he's looking at the annual statement there, the annual report, it has to do with income taxes, of which I don't have anything to do with the income taxes of the company.

Q Well, do you know whether or not the expenses associated with

Colstrip are material in reducing the taxes this year?

HEARINGS EXAMINER: Are you referring to income tax, Mr. Graybill?

MR. GRAYBILL: I'm referring to whatever they mean by taxes on operation.

MR. PETERSON: Well, I'll object on grounds it's improper re-cross.

HEARINGS EXAMINER: Sustained.

Q All right. Well, then I only have one other question, and it's probably improper redirect, too, but you might let Mr. Gilder clear it up for me, Jack. On Exhibit 249 he shows that Mr. Gillen has nothing but cows for eight years. Now you're not under the impression that he got that increase in his herd with nothing but cows, are you, Mr. Gilder?

HEARINGS EXAMINER: That's just what he reported to the assessor.

MR. GRAYBILL: That's all I have.

HEARINGS EXAMINER: Okay. Anything else, Mr. Peterson? I guess you're excused, Mr. Gilder.

(WITNESS EXCUSED)

HEARINGS EXAMINER: Next witness.

MR. PETERSON: No problem with our subpoenaed witness, but we're trying to accommodate Mr. Schwinden, and he's on his way over. As I understand it, his testimony is going to be very brief. We've got no other opportunity to call him.

HEARINGS EXAMINER: Well, it's your case. You call them how you want to.

MR. PETERSON: Here he is.

HEARINGS EXAMINER: We've got all their statements served and exhibits, so if that's who you want to call, put him on.

MR. PETERSON: The applicants call as their next witness Ted Schwinden, and at this time offer into evidence his testimony along with Applicants Exhibits numbers 300 through 319, and we also have two corrections to the testimony of Mr. Schwinden. On page 1, at line 5, the word Roosevely should read Roosevelt County, and also on page 1, at line 8, it should read March 5 instead of February 5.

TED SCHWINDEN, called as a rebuttal witness by the Applicants, having been first duly sworn upon his oath, both as to his written direct testimony and as to the oral testimony to follow, was examined and testified as follows:

(THE WRITTEN DIRECT TESTIMONY OF MR. TED SCHWINDEN WAS DIRECTED TO BE INSERTED AT THIS POINT.)

STATEMENT OF TESTIMONY OF TED SCHWINDEN

My name is Ted Schwinden and I am Commissioner, Department of State Lands. I have held that position since 1969. I live at 1335 Highland St., Helena, Montana. Prior to accepting my present position, I operated a family owned farm in Roosevelt County. I was born on August 31, 1925 in Wolf Point, Montana. I attended Montana School of Mines, Montana State University (Missoula) and the University of Minnesota graduate school.

On March 5, 1976 I was served with a subpeona by the applicants and was requested to testify as to the Strip Mined Coal Conservation Act and Western Energy Company's mining plan as approved in accordance with that act and the department's investigation into the matter.

The Department of State Lands is charged with the administration of the Strip Mined Coal Conservation Act, codified as Chapter 14, Title 50, R.C.M. 1947. The act declares it to be public policy to provide for the orderly development of coal resources through strip mining to assure the wise use and to prevent the waste of coal. It vests in the Department the authority to review strip mining plans and either approve or disapprove such plans for the purpose of preventing waste. "Waste" is defined as "the nonremoval or nonutilization of strippable and marketable coal by an operation, provided that the nonremoval or nonutilization of strippable and marketable coal in accordance with reclamation standards established by the Department shall not be considered waste." "Strippable coal" means that coal which can be removed through strip mining methods adaptable to the location that coal is being strip mined or is planned to be strip mined. "Marketable coal" means strippable coal that is economically feasible to mine and is fit for sale in the usual course of trade.

No operator may engage in strip mining without having obtained departmental approval of a strip mining plan. On March 6, 1974 Western Energy Co. (WECO) submitted an application for approval of strip mining plans for Area E-1 and

Pit 6. A true and correct copy of that application is attached hereto as Applicant's Exhibit No. 320.

There are two seams of strippable coal in the Colstrip area - the Rosebud and the McKay. The plans submitted by Western Energy did not provide for the mining of the McKay seam and utilized coal "fenders" to stabilize cuts in mine areas. The department's major concern with the plans as submitted centered around the McKay seam. WECO did not contend that the McKay was not strippable, but only that it was not marketable. To support the claim of non-marketability the application contained letters from several coal consuming entities generally stating the undesirability of the McKay seam because of slagging problems resulting from the burning of the McKay in certain boilers.

The Department's inquiries into the matter were prompted by the fact that Peabody Coal Company was mining and successfully marketing the McKay seam only a few miles from WECO's operations. The department viewed the fact of Peabody's success as apparently being in conflict with WECO's claim of unmarketability and attempted to resolve the apparent conflict by an extensive investigation into potential markets for the McKay seam.

Various state and federal agencies as well as several private companies were contacted regarding potential use of the McKay seam and problems which might be associated with such use. Attached hereto are true and correct copies of the various letters and responses received as well as notations on phone conversations, all marked as Applicant's Exhibit Nos. 301 through 316. The Department's conclusion was, that the McKay seam was not marketable "in the usual course of trade." That conclusion is evidenced by a memorandum dated May 9, 1974, a true and correct copy of which is attached hereto and marked as Applicant's Exhibit No. 300.

On March 15, 1974 and May 15, 1974, the Department approved WECO's mining plans in accordance with the Strip Mined Coal Conservation Act. True and correct copies of those approvals are attached hereto as Applicant's Exhibit No. 317. The approvals place the responsibility upon WECO to continue efforts to market the McKay seam. The approved plans were valid for one year and have been renewed and amended as the operation continued and expanded. WECO also has approved plans for Area E-2 and Area A which also allow the McKay seam to be left unmined.

WECO has periodically provided the department with copies of correspondence showing an effort on WECO's part to market the McKay. I recently received a letter from Mr. Schmechel, President of WECO, indicating a possible market for the McKay. True and correct copies of that letter and the Department response are attached as Applicant's Exhibit Nos. 318 and 319.

EXAMINATION OF TED SCHWINDEN

Rebuttal, Cross, by Department of Natural Resources and Conservation

By Mr. Shenker:

Q Mr. Schwinden, I have only one question for you, sir. Have you ever heard of McKay coal not being compatible with coal liquifaction or coal gasification plants?

A No.

MR. SHENKER: Thank you, sir.

HEARINGS EXAMINER: Mr. Meloy?

MR. MELOY: No questions, Mr. Davis.

HEARINGS EXAMINER: Mr. Graybill?

Rebuttal, Cross, by Northern Plains Resource Council

By Mr. Graybill:

Q Hello, Mr. Schwinden.

A How are you, Mr. Graybill?

Q Fine. I have a few questions. I don't think they'll take too long. In reading over your statement, I notice on the top of page 2 that you mention the fact that you're aware that there are two seams of strippable coal in the Colstrip area, the Rosebud and the McKay. There's been testimony here in this hearing by Mr. Rice, the geologist for the applicants, about these two seams of coal. I take it that you and the land board are aware that the McKay seam is about 8 to 10 feet thick, and that it, in many places, that it underlies the Rosebud seam almost everywhere in the area of the mine, and that it is often only 11 to 12 feet, or 12 to 15 feet, below the bottom of the Rosebud seam. Are you aware of those factors?

A That's generally true.

Q Yes. And then the next sentence in your statement, on line 4 of page 2, says the plans submitted by Western Energy did not provide for the mining of the McKay seam. When were these plans submitted? I don't mean exactly, but about when?

A It would be in early 1974.

Q In early 1974. Was the coal board, or I don't mean the coal board, the land board or were you aware of the fact that at that time the Montana Power and its engineers, the Bechtel Company, were engineering in order to burn a 60/40 Rosebud-McKay blend?

A At the Corette plant?

Q No, at units 3 and 4 of Colstrip.

A Restate the question, please. Were we aware that they were planning to burn a 60/40 blend; was that the question?

Q Right.

A I was not aware.

Q In other words, they made an application to you to mine just the Rosebud seam in the early part of 1974 you're saying?

A Right.

Q I have just handed you an exhibit; I think that it shows that it's DNR's Exhibit number 17 in this hearing. I guess it's in the Board of Health part of this hearing which is dated, I believe, April 30, 1974, and if you read the first sentence or two, you'll see that they were still considering that the plan was then still to build a plant that would burn a 60/40 blend of Rosebud-McKay coal. Do you see that in the exhibit?

A Yes, I do.

Q Are you telling us that when the application was made to the land board that you were not aware that there had been extensive engineering to be able to burn the McKay seam right in Colstrip 3 and 4?

A Well, if my recollection of time frame is correct, the application preceded this particular letter; but to the best of my knowledge, I have not seen this document before, and I was not aware that there were studies or specifications being drawn up for a 60/40 Rosebud-McKay blend.

Q Now, Mr. Schwinden, I'm going to show you DNR Exhibit number 32 in the Board of Health portion of this hearing, entitled the affect on reliability of different systems on the annual costs of the power plant. This is another exhibit that's been put in evidence in this case, and I call your special attention to subpoint number 4 there on the first page where, under the preconditions that the engineers were working on, they discussed the fuel to be burned. Do you see that subparagraph?

A Subparagraph 4 where it says fuel burned is a blend of 60 percent-40 percent; is that the one?

Q Yes, yes. Now that exhibit is from the engineering for Colstrip 3 and 4, and shows, I believe, that at the time the engineering was done they were intending to burn a blend of Rosebud and McKay coal. You weren't aware that that type of engineering had been done to allow the McKay coal to be burned in the Colstrip 3 and 4 units?

A No, sir.

Q Now showing you Department of Natural Resources Exhibit number 20, which was admitted in the health part of this hearing, which are some discussion notes dated June 19, 1974. I'll ask you to read the first paragraph. Now those notes, I believe, which are in evidence in this case discuss the possibility of extending the pilot plant tests at the Corette plant where there was a pilot plant. You were aware, weren't you, that there was a pilot plant test site at the Corette plant for burning coal?

A Test burn?

Q Test burn.

A Right.

Q Those notes concern the possibility of extending the tests to burn more McKay coal, and Mr. Raben, who is referred to there, when he was here testified that they finally decided not to do that. Were you aware that there was discussion as late as June of 1974 about further tests of the McKay coal to see how it would respond in the boilers at Colstrip 3 and 4?

A I'm not sure, Mr. Graybill, whether you're referring to the test burn which was ultimately held at the Corette plant; you're not referring to that?

Q Yes.

A Okay.

Q There were tests held at the Corette plant; they built a pilot plant there, they call it, to test various reactions to the coal. The pilot plant was a small mock-up of the Colstrip 1, 2, 3, 4, and the venturi type machine there, and they burned various amounts of coals over a long period of time; they had test burns there. You're aware of the program?

A Right.

Q All right, now those notes refer to the possibility of extending that program to include a special burn to determine the properties of McKay coal as applied to this test pilot facility. Were you aware that there was discussion about a special test run on McKay coal to see how it would react in the pilot plant?

A I think my answer would be no, Mr. Graybill; I'm not sure at which point the department was advised that a full scale burn of the McKay would be sought at the Corette plant during the summer or fall of 1974. I just don't remember exactly when we were first advised or became aware of that, but as for a preliminary test burn on a pilot basis, we were not aware of these conversations or what they pretended.

Q Now I advised you that Mr. Raben, who is the vice president of Combustion Engineering, Inc., I think it's called, Combustion Equipment Associates, the builder of the scrubber system, he later related that that test burn of the McKay coal never took place, that extra test burn that he's referring to there. So that test was never done to see what the result would be in the pilot plant. You weren't aware that there'd been any discussion about it one way or the other?

A No, sir.

Q And I'd like to show you now Department of Natural Resources Exhibit number 29, which is a series of 12 flow sheets and 3 economic analysis sheets and capital cost summaries and so forth, which was an interoffice memorandum of the engineers of Bechtel Corporation, and call your attention to the coal to be burned in the various computer run tests and to the interrelationships of them. You know, do you not, that the computer print-outs illustrate that among the various matters tested in that computer print-out are the -- is McKay coal? In other words, it's an element in the tests there; sometimes it's all McKay, sometimes it's 60/40, sometimes it's all Rosebud; you see the comparisons there?

A If I read the computer print-out correctly, what the top two lines apparently show are burn percentages; for example, column 1-A is 100 percent Rosebud burn; is that correct?

Q Right.

A Column B is a 60/40 Rosebud-McKay, yes.

Q You see that?

A Yes.

MR. ROSS: Excuse me, is this marked as an exhibit, Leo?

MR. GRAYBILL: It's Department of Natural Resources Exhibit number 29, isn't it; that's in the Department of Health part.

Q Now those extensive tests were run, and the engineers there had a computer print-out on those results. Was the land board and your office ever made cognizant of the fact that these tests had been done and what the results would be if Rosebud, if McKay coal, was burned in units 3 and 4?

A Not to my knowledge.

Q So on page 2 of your statement, you summarize that the department's conclusion, and I take it by department you mean the land board, is that right? The department's conclusion was that the McKay seam was not marketable in the usual course of trade. Was that conclusion reached without the knowledge that you've just said, that you've just testified to; in other words, without knowing about those Bechtel tests and without knowing that the engineering had been done for a 60/40 mix, etc?

A Well, as I've already testified, Mr. Graybill, to the best of my knowledge this particular information was not made available, was not known to the department. The determinations made by the department were based upon much of the exhibit material which has been submitted as a part of my testimony, the McKay burn the summer of '74 and extensive investigations made by the department, but to the best of my knowledge did not include the subject material which you have placed before me this afternoon.

Q I see, and particularly you didn't realize, and you don't think the land board did at the time they made that decision, that as late as the spring of 1974 the engineering included a 60/40 split between Rosebud and McKay coal to be burned in Colstrip 3 and 4?

A I did not.

Q All right, now when the department reached its conclusion that McKay seam was not marketable, it knew at that time, did it not, that Peabody was, in fact, marketing the McKay seam?

A Yes, sir.

Q Do you know how Peabody marketed the McKay seam?

A Do you mean where it was sold or how they found the market?

I have no idea how they made the original contract. The coal was primarily, as far as I know, being sold by Peabody to Minnesota Power and Light. There are extensive communications between our department and their officials and other officials throughout the country. How the original contract was arrived at, we're not aware of.

Q I read through all of that material, and I don't want to go through it all individually, but it seemed to me that some of the information you got back from that company was that they burned McKay for awhile and then they burned Rosebud for awhile; isn't that right?

A As I recall again, as you did, rereading all of that material, that is my recollection.

Q So that some energy company in the east was able to burn McKay coal and turn it into electricity successfully?

A The answer is that they were certainly using it, and I assume successfully.

Q Well, and since we know they used one and then the other, we know that they were able to burn it for an extended period of time until they got the next shipment of Rosebud; isn't that right?

A Apparently so.

Q In its decision concluding that the McKay seam was not marketable quote, in the usual course of trade, did the land board, if you know, consider burning McKay in Colstrip 3 and 4?

A Did we consider burning it in 3 and 4?

Q Yes.

A Not at that time.

Q Now there was testimony here by Mr. O'Connor on cross-examination when he was asked about the role of the Western Energy Company vis-a-vis Montana Power that the power company intended to operate Western Energy Company as a profit-making subsidiary, and that it sold coal to other coal companies to make a profit; and I think you're aware, I suppose, that, in fact, its prices and its sales to these other utilities outside Montana are normal coal sales comparable to those made by other companies in Montana; isn't that so?

A As far as I know.

Q So as far as you know Western Energy Company is, in fact, the coal company that tries to make a profit selling coal?

A I would assume so.

Q Well, it's the 1975 annual report of the Montana Power Company would so indicate, too. Now in answer to another question, Mr. O'Connor said that as between Western Energy Company and Montana Power and its applicant friends that were building Colstrip 1 and 2 and later 3 and 4, that while it was still a subsidiary they were going to sell the coal to themselves and intended to make the same profit on the coal that they would make if they sold it outside the state. If that's true, then why wouldn't Colstrip 1, 2, 3, and 4 be at least a potential customer for Western Energy McKay coal?

A I know of no reason why they would not be a potential customer.

Q Do you know whether or not the department in its conclusion that the McKay seam was not marketable in the usual course of trade considered that possibility?

A Whether the McKay coal itself and not --

Q Well, whether it could be used, you know, blended, burned alone, or whatever it is, marketed to Montana Power and the applicants for use right there at Colstrip?

A Well, if I may say one thing, Mr. Graybill. When the department considers an application for an area to be mined, it's considered on the basis of the coal that's to be extracted must meet the requirements of the various acts that we administer, and at the time that we considered the areas that were proposed to be mined for the respective year of '74-'75 and the various permit areas, our review basically was confined to the markets available, the usability, the reclamation potentials at that point in time.

Q In other words, the land board doesn't approve the mining of all the coal in the field at once; it approves it year plan by year plan, is that the idea?

A We have an annual permit system.

Q And all that they've done at the moment is say that based on the years that were in question at that time, one year at a time, they did not see a viable market for McKay coal; is that what they've said?

A In effect, yes, because each year the department has issued permits, in this case to Western Energy Company, and has verified compliance with the Coal Conservation Act.

Q And when was the last set of permits issued? I don't need the day, but if you can know the month or so?

A Without looking at documents, Western Energy has several permits and amendments to permits in several different areas, and I would be happy to provide for you, counselor, supplementary information of the status of all existing and prior permits, but I just don't -- there must be at least 4 or 5.

Q Well, let me stop you a minute. Mr. Schwinden, maybe we can help ourselves by reading your statement. The statement where it says the conclusion was that it was not marketable in the usual course of trade is followed by a sentence that says that that's evidence by a memorandum dated May 9, 1974. So in other words, that's the date on which that particular finding was made by the board; is that right?

A Yes, on the particular applications pending at that time.

Q And that would be an application, that's Western Energy 220 application; that would be an application for a year?

A Yes, along with the strip mine permit which had been sought for that same time period.

Q So what you're really saying when you make that statement in your testimony is that on May 9, 1974 the department said that at that time it was their conclusion for that year's mining plan that the McKay seam was not marketable in the usual course of trade?

A That was the determination by the department, and pursuant to the findings of that memorandum, the department subsequently approved the strip mine permit and confirmed compliance with Chapter 220 of the Coal Conservation Act later that spring.

Q For that year?

A Right, for that year.

Q And theoretically renewed it again last year since it's another year gone by?

A Yes.

Q But what you're saying then is that the department could reconsider that conclusion at any annual permit time?

A Absolutely.

Q And then I understand you to be saying in the last paragraph of your testimony that Mr. Schmechel, the President of Western Energy, has very recently raised a view, the possibility that there might be a sale of McKay coal to Japan?

A Yes, sir.

Q But you haven't completed analysis of that because you felt it was untimely at the moment?

A Yes.

Q It is true, is it not, Mr. Schwinden, that if McKay coal was burned in a 60/40 ratio, something of that nature, at Colstrip, that you'd be able to -- environmentally you would degradate a slightly less amount of land, up to 30 or 40 percent less land would have to be dug up if you used both veins instead of one to achieve a certain tonage for the plant, right?

A If you're talking about a fixed demand for that coal, but if utilization of both leads to extension of contracts, you know, you simply furnish more coal to more customers; but your analysis is correct. If it were all going to one plant, you would disturb less acreage because you were covering more coal.

MR. GRAYBILL: I think that's all I have, Mr. Schwinden, thank you.

HEARINGS EXAMINER: Mr. Ross?

MR. ROSS: May I have just a couple of minutes, please?

HEARINGS EXAMINER: Yes, you may. We'll take a recess.

(RECESS AT 3:23 P.M.)

After a brief recess, the hearing reconvened at 3:45 on Wednesday, March 24, 1976.

HEARINGS EXAMINER: Do you have any redirect?

CONTINUATION OF EXAMINATION OF TED SCHWINDEN

Rebuttal, Redirect by Applicants

By Mr. Ross:

Q Mr. Schwinden, Mr. Graybill asked you some questions regarding some communications that the Montana Power Company had had, showing that they were considering burning McKay coal or blends of McKay coal; and I'd like to ask you if you were aware that the Montana Power Company conducted a test burn of McKay coal at the Corette plant?

A Yes, I am.

Q And are you aware that they applied for a variance to the Montana Board of Health at the Corette Plant?

A Yes.

Q And were you aware that the applicants desire an actual test burn at the Corette Plant?

A Yes.

Q And did you receive a copy of the results of that test burn at the Corette plant?

A We did.

Q And isn't it true that that report on the test burn at the Corette plant showed that there are some general problems involved with burning the McKay coal?

A That's true.

Q Did the applicants send to your department a copy of the Board of Health's findings of fact and conclusions of law with regard to the hearing in the Colstrip 3 and 4 case?

MR. GRAYBILL: Just a minute. I want to make an objection at this point, Mr. Hearings Examiner. I haven't understood what Mr. Ross was driving at; but do I understand that this is not the pilot plant test burn, this is the test burn that was conducted at the Corette plant in the Corette plant boilers; is that right, Mr. Ross? You see, if it is the test -- if it's the pilot plant test that you're talking about, then I have no objections; but if you're talking about a test burn that was run in the Corette plant itself, I asked no questions about that and there's nothing in Mr. Schwinden's statement about that, and it would obviously be outside the scope of redirect.

HEARINGS EXAMINER: We don't know anything about it, do we.

MR. GRAYBILL: And I've never heard about it, and it seems to me that's outside the scope.

HEARINGS EXAMINER: Well, Mr. Ross, do you know?

MR. ROSS: No, I don't know for sure; but I certainly think that it's not beyond the scope of cross-examination. There are a number of questions about testing the McKay coal, and certainly this is one of those tests.

HEARINGS EXAMINER: Is that the book you have there that says it's the pilot plant test that's an exhibit in this?

MR. ROSS: No, this is a separate report on the test burn at the Corette plant.

HEARINGS EXAMINER: Well, you can answer; I don't know, but you can redirect then and find out then, I guess, Mr. Graybill, because maybe Mr. Schwinden knows.

MR. GRAYBILL: Well, let me voir dire.

Voir Dire, by Northern Plains Resource Council

By Mr. Graybill:

Q Mr. Schwinden, is the test to which you are referring, the one that you got the report on; is it in the pilot plant, which was built at the Corette plant, or is it in the Corette plant itself?

A To the best of my knowledge, it was in the Corette plant itself, during the period in August and September of '74.

MR. GRAYBILL: If that's the case, Mr. Hearings Examiner, that would not be anything that we've gone into.

HEARINGS EXAMINER: I'll sustain the objection on that. You can ask him about the pilot plant test; we've got bundles of evidence on that in the record, and that was McKay-Rosebud coal, was burned in that in the 40/60 split -- blend, pardon me.

MR. GRAYBILL: Yes, a split is a different thing.

Rebuttal, Redirect by Applicants

By Mr. Ross (continuing):

Q Are you aware that the applicants transmitted to your department a copy of the findings of fact and conclusions of law in the Board of Health proceedings?

MR. GRAYBILL: Just a moment. Is that -- in this Board of Health proceedings, or are you talking about a Board of Health proceeding --

MR. ROSS: The Board of Health proceedings in this Colstrip 3 and 4 case.

MR. GRAYBILL: I withdraw my objection.

A I'm not sure who delivered them. The department was delivered a copy of the Board of Health's findings of fact and conclusions of law.

Q And were you aware that those findings of fact and conclusions of law require Rosebud coal to be burned in Colstrip 3 and 4?

A Yes, sir.

MR. ROSS: No further questions.

HEARINGS EXAMINER: Mr. Graybill -- or Mr. Shenker, do you have any questions now that have suggested themselves?

MR. SHENKER: Yes.

Rebuttal, Re-cross, by Department of Natural Resources and Conservation,
By Mr. Shenker:

Q Mr. Schwinden, in your annual review of permits for mining by the Western Energy Company, I take it one of the facts you have considered is the potential of the use of McKay coal by an appropriately designed system in the Colstrip units 3 and 4; wouldn't that be true?

A In an appropriately designed system?

Q Yes. And if the design that has been submitted so far isn't good enough to burn at 3 and 4, then if there is a design that is submitted that is good enough to burn McKay coal in 3 and 4, that's something you take into consideration when you look at annual reports; right?

A If such a design existed. At the present time, as I just testified, of course, the Board of Health has certified non-use of McKay.

Q That's right. Of course, the Board of Health did not say that there wasn't a better design or a different design that could use McKay coal; it just said at the moment we don't want those folks to use McKay coal in the Colstrip units 3 and 4; right?

A Right.

MR. SHENKER: Nothing further. Thank you.

HEARINGS EXAMINER: Mr. Graybill.

Rebuttal, Re-cross, by Northern Plains Resource Council

By Mr. Graybill:

Q I'm tempted to ask you what was delivered to you by the Board of Health because a lot of us are trying to find that out; but I'm going to let that one pass and ask you an easier question. You do understand, don't you, that whatever the Board of Health delivered you and whatever it is that requires the burning of Rosebud coal, is based on the plant as proposed in the Colstrip hearing to date, not on any general preference for one type of coal over another?

A Yes.

Q In other words, you understand that the Board of Health said that only Rosebud coal could be burned using the venturis the way they are designed and the plant the way it is designed in the proposal of the applicants here; isn't that what you understand?

A That is exactly what the Health certification says.

Q And that, of course, is why Mr. Shenker asked you if another appropriately designed plant were proposed, you would consider it; and I think you answered yes?

A Yes. If I may respond, if that is appropriate?

HEARINGS EXAMINER: You may.

We did so indicate that in December of 1975 I wrote a communication to Western Energy Company that we did not necessarily conclude from the findings of the Board of Health that the coal, McKay, was unsuitable for any present market; that the Board's findings and conclusions reflected the fact that the 3 and 4 plants are not designed to burn McKay coal and meet the state's air quality standards. So it was a point in time determination.

Q Have you got a copy of that communication?

A I have one with me. I'm not sure whether it was submitted as part of our --

Q That I know of, it's not in your exhibits here. Can you make that available to us?

A Certainly will.

Q Let me look at them.

A This is the transmittal letter. This is the response letter.

Q Mr. Schwinden, you just told me about the transmittal to you from the Board of Health and your response to them, and have we now marked those items as Northern Plains Resource Council proposed exhibits 21, 22 and 23; right?

A 21 and 22 and 23; they are from Western Energy Company, not from the Board of Health.

Q Alright, Western Energy Company notified you in 21, and then you responded in 22, and then they responded in 23; and it's about this matter of whether or not the Board of Health's designation of Rosebud is binding on the Land Board?

A It's really, I think perhaps from our point of view, it's an ascertion by the Department, that the Board of Health determination was a moment in time consideration; and that each year the Department has a responsibility to look at the suitability and marketability of any unmined coal scene.

Q Which is, of course, about what you told me a few moments ago in cross-examination?

A Correct.

MR. GRAYBILL: We offer Northern Plains Resource Council 21, 22 and 23.

HEARINGS EXAMINER: Mr. Ross, do you have any objections or voir dire?

MR. ROSS: No objections.

HEARINGS EXAMINER: I want the record to show that Mr. Schwinden is here under subpeona, and you have with you your attorney, Mr. Barry. And Mr. Barry, you're permitted to make objections or to voir dire, if you wish. Do you have anything on this particular thing you'd like to say?

MR. BARRY: I don't have anything.

HEARINGS EXAMINER: Very well. Exhibits will be admitted.

MR. GRAYBILL: That's all I have.

MR. ROSS: No further questions.

HEARINGS EXAMINER: Do you have anything, Mr. Barry? (No response.) Very well, Mr. Schwinden, we will look forward to seeing you again in the near future. Thank you.

(WITNESS EXCUSED.)

HEARINGS EXAMINER: Do you have any objections now, Mr. Graybill, as to the exhibits that are offered through Mr. Schwinden; any of the opponents, any objection for the record?

MR. GRAYBILL: No objections.

HEARINGS EXAMINER: Very well, the exhibits -- Mr. Ross, I didn't hear you and it may have been an oversight on my part, when you offered your exhibits you mentioned Exhibits 300 through 319, but you have 300 through 320 and they are all admitted; and Northern Plains 21, 22 and 23 are admitted.

NEIL H. WOODLEY, called as a rebuttal witness by the applicants, and having previously been sworn and testified in this matter, was further examined and testified as follows:

(THE WRITTEN DIRECT TESTIMONY OF NEIL H. WOODLEY WAS DIRECTED TO BE INSERTED AT THIS POINT.)

STATEMENT OF TESTIMONY OF

NEIL H. WOODLEY

My name is Neil H. Woodley. I am Chairman of Portland General Electric Company's Generation Resources Investigation Team. I have previously testified in these proceedings that the cost of shipping coal from the Montana area west by unit train to our service area exceeds the cost of transmitting electricity from a mine mouth generation facility such as Colstrip.

The Northern States Power Company memorandum dated January 8, 1976, DNR Exhibit No. 32, and the Northern Great Plains Resources Program (referred to in previous testimony), which indicate that the converse is true for their load and available resources are inappropriate and inapplicable to Portland General Electric Company and I believe to the other Pacific Northwest Colstrip participants as well.

The circumstances upon which Mr. James Forest of Northern States Power Co. based his conclusion (DNR Exhibit No. 32) differ markedly from those upon which I base my conclusion that rail shipment from Gillette, Wyoming, to Boardman, Oregon, by unit train is more costly than mine mouth generation at Colstrip 3 and 4 and transmission to the Pacific Northwest power grid. I make the foregoing statement after having talked to Mr. Forest by telephone.

The rail rates applicable to the Northern States situation are substantially less than those available to Portland General Electric Company. The rail tariff for transporting coal from Colstrip to Sherburne County, Minnesota, was established before the 1973 Arab oil embargo and subsequent dramatic increase in rates.

As a published tariff, the Northern States Colstrip-Sherburne County unit train is not subject to large step increases but is escalated according to a set Burlington Northern escalation formula keyed to the American Association of Railroads' Cost Index. The Northern States' calculation of rail rates, upon which DNR Exhibit No. 32 was based, was made back in 1971 and was based upon rail tariffs established as of that date with an escalation rate of 1.9% per year predicted. This resulted in a rail rate figure of approximately 7.4 mills per ton mile as of 1976. This figure is obviously too low as applied to the transportation of coal from Eastern Montana or Wyoming to the Pacific Northwest. For example, our Company has recently been quoted the figure of 10.8 mills per ton mile for shipping coal by unit train from Wyoming to Oregon, and this figure is predicated upon our Company's ownership of the necessary cars for shipping purposes. The Northern States' calculation, on the other hand, was based on the railroad's ownership of cars, which runs approximately 1.5 mills per ton mile mor than ownership of the cars by the company shipping the coal.

In 1971 when Northern States concluded that for them it would cost less to ship coal from Colstrip, Montana, to Sherburne County, Minnesota, than to burn lignite coal in North Dakota and transmit electricity to its load area, Northern States was predicting delivered coal costs of 33¢ per million BTU for 1976 and at 1.9% escalation per year predicted coal cost of 40¢ per million BTU in 1985. Approximately 20¢ of the 33¢ represented transportation cost. Actual delivered fuel cost for 1976 at Sherburne County is approximately 60¢ per million BTU, almost double that predicted. Even with Northern States' favorable tariff, its delivered fuel

HEARINGS EXAMINER: You've already been sworn, so just have a chair, Mr. Woodley. I think the record should show that you're accompanied by your counsel. Sir, would you put your name in the record?

MR. EMERICK: Derrill Emerick, D-E-R-R-I-L-L E-M-E-R-I-C-K. (Inaudible.)

HEARINGS EXAMINER: Thank you. You're just giving him moral support.

MR. ROSS: Can I have just a minute to get his statement?

HEARINGS EXAMINER: Yes.

MR. ROSS: The applicants call Neil Woodley, and there are no exhibits with his testimony and no corrections.

HEARINGS EXAMINER: Very well. Mr. Shenker.

EXAMINATION OF NEIL H. WOODLEY

Rebuttal, Cross by Department of Natural Resources and Conservation

By Mr. Shenker:

Q Welcome back, Mr. Woodley.

A Thank you, Mr. Shenker.

Q Your statement of rebuttal testimony is one that compares the best costs as far as PGE is concerned and then goes beyond that to other utilities in the Pacific Northwest for getting the energy on-line for your customers, whether it's by rail haul or transmission lines; that's what you discuss, isn't it?

A Generally, yes.

Q Now, that has also been a subject of discussion, has it not, Mr. Woodley, by the members of the staff of the Public Utility Commission of the state of Oregon?

A By members of the staff, yes.

Q And, of course, in the ordinary course of events in the Oregon country when your rate proceedings are underway, the staff takes a look at papers that you present; they look at whatever figures are presented to them. We, in fact, have some testimony in this proceeding as to how the Public Utility Commission works in Oregon from a former public utility commissioner. And then they file what they call statements of testimony, not terribly different from what we do here in Colstrip; isn't that the way the procedure works?

A I guess that's generally the case. You're probably considerably more familiar with that than I am, Mr. Shenker.

Q Well, you know, do you not, Mr. Woodley, that members of the staff of the Public Utility Commission of the state of Oregon, have taken a look at the precise question which you discuss here and draw conclusions as to whether it's more or less expensive to get the Colstrip power off of transmission lines as proposed in this proceeding or some other way?

A To my knowledge, the staff has never looked at that question.

Q Do you know Mr. Roger L. Colburn?

A I know him well.

Q Indeed. Do you know that he had prepared testimony for delivery at your rate proceeding on April 13, 1976?

A Yes, I am familiar with that and am surprised at your thoroughness, Mr. Shenker. Perhaps I shouldn't be; that you're familiar with our rate case as you are.

Q We like to keep informed, Mr. Woodley, wherever we find some useful information.

A Fine.

Q It is true that Mr. Colburn, in that prepared testimony, drew the conclusion, did he not, that because your share of Colstrip would be more expensive than other alternatives available to you, his recommendation that your Colstrip expenses be wholly deleted so that it's not passed on to the ratepayers?

A Mr. Colburn did not look at the question of alternatives open to us, nor was that the thrust of his testimony in any way, shape or form; and any implication that it was, I believe to be erroneous and inappropriate.

Q Well, would you go along with the fact that Mr. Colburn said in his testimony, prepared for delivery in your rate proceeding, that $23,047,000.00 should be decreased from your invested capital earnings base and research and development expense, due to the deletion of the Colstrip project from your construction budget?

MR. ROSS: I'm going to object. This report is not in evidence.

HEARINGS EXAMINER: Overruled; he can answer.

A Yes, I would agree that he made such a statement; but I do not agree with the statement. The statement that he made, in terms of the $23,000,000 decrease due to deletion of the Colstrip project, resulted from his own supposition that if he had to decrease the amount of revenue required by the company to match a load forecast, which was produced by a man with seven months of experience on the PUC staff, a man whose total sum of experience amounted to zero in industry and in previous regulatory responsibilities. It was on the basis of his request for how Mr. Colburn thought the amount of revenue required should be reduced; and Mr. Colburn made some suppositions totally unsupported by any rational or logic that I would agree with, that he said yes, we should remove $23 million due to deletion of Colstrip. That's Mr. Colburns' testimony; yes, I agree. Everything that supports that I disagree with; his rational for taking it out, I disagree with. And I think any attempt on your part to inject in this proceeding that this is appropriate or warranted, is totally inappropriate and unwarranted.

Q Would you like to so rule, Mr. Woodley? It's not a very far walk up to Mr. Davis' chair and he'd like company, if you'd like to go up there and rule as to what's admissible or not.

MR. ROSS: Objection, it's argumentative; move to strike comments of counsel.

HEARINGS EXAMINER: Stricken.

Q Mr. Woodley, it's only 5 minutes to 4, sir; your plane leaves at 5:37 P.M.; if you want to make your answers as long as the last one, that's fine; we'll stay here as long as necessary to get the work done.

MR. ROSS: Object. Move to strike comments.

MR. SHENKER: You don't mind if I finish, do you?

MR. ROSS: Excuse me; I thought you were through.

Q You don't mind, Mr. Woodley, if I ask you some questions and you answer those questions; that's all right with you, isn't it?

A That's your business. That's what I'm here for.

Q Let's see if we can't agree then, that you don't like Mr. Tousick very much?

A I don't know Mr. Tousick.

Q He's the fellow who had the 7 month's experience, right?

A That is correct, by his own testimony.

Q And your critical evaluation of Mr. Tousick's testimony is that we should all reject that and we should all rely upon you; is that right?

A I didn't talk about my forecasts or my work involving forecasting; I only responded to the reason behind Mr. Colburn's statement in his testimony of deleting the Colstrip project from the construction budget; that is all. And the basis for that is totally without substance.

Q Mr. Woodley, as long as you commented at length on your evaluation to Mr. Colburn's testimony, we probably should get into it in more detail, then.

A That was Mr. Tousick.

Q Mr. Colburn's testimony is the one that refers to the deletion of the Colstrip project; and the fact of the matter is, contrary to what you said, Mr. Colburn did consider an alternative to Colstrip, didn't he? He considered combustion turbines, isn't that correct?

A Combustion turbines are not an alternative to Colstrip, Mr. Shenker. I testified to that previously when I was up here the last time.

Q It may surprise you, Mr. Woodley, but the fact that you testified to it does not make it gospel truth. Now let's see if we can't agree that Mr. Colburn said, "If all the energy PGE expected to get from Colstrip, 465 average megawatts, for three seasons, were to be supplied by combustion turbines at a cost differential of, say, 20 mills per kilowatt hour, the cost would be $81,468,000 for three seasons. This, of course, assumes three seasons of critical water. This is still less than the cost of the Colstrip project." Did he say that, or didn't he?

MR. ROSS: Excuse me. I move to strike the comments of counsel characterizing this witness' testimony; and secondly, I object to this line of testimony, because the report from which Mr. Shenker is reading is not in evidence in this hearing.

MR. SHENKER: Mr. Woodley is obviously quite familiar with it, has made a very lengthy answer spread over the record in this case now.

HEARINGS EXAMINER: Well, I --

MR. SHENKER: Now just a moment --

HEARINGS EXAMINER: Go ahead and finish your statement, if you've ruled that I should stop, Mr. Shenker; and then when you get through, then, I'll go ahead. When you say "just a moment," well, "just a moment," go ahead.

MR. ROSS: Have you asked a question?

HEARINGS EXAMINER: No, I'm waiting to rule on his objection, when everybody gets through talking.

MR. ROSS: Excuse me.

HEARINGS EXAMINER: Okay, I've let him question on this; I haven't let him question on reading the contents.

This purports to be some testimony prepared that has not been delivered or sworn to or anything in another hearing; and I'm not going to permit you to read from it. You put it in evidence that way; it's not sworn testimony in any sense of the word in this hearing.

MR. SHENKER: May I be heard, Mr. Davis?

HEARINGS EXAMINER: Yes, sir, you may.

MR. SHENKER: We have in evidence in this hearing dozens of reports that express the opinions of other people, not witnesses, in this proceeding. If a witness, sitting on the witness stand, is familiar with the views of another person, he is entitled to express his reactions to those views. Now, that has been a rule of evidence in judicial proceedings for a very long time. It has also been a rule of evidence followed by this Hearings Examiner in this hearing for a very long time. I know of no reason why that should now mean we will depart from the rule when the exact language is quoted to the witness who is familiar with the contents of the statement that is presented to him for his reaction. Why now do we have a sudden departure for a double standard?

HEARINGS EXAMINER: This is the first time we've had a statement that was prepared for someone else, been considered in this thing. We've had lots of studies I agree to that have been published and documented and researched; but this seems to me to be quite a bit different. Now, maybe you can explain if this is a statement or a study.

MR. SHENKER: Yes, sir, Mr. Davis.

HEARINGS EXAMINER: This is a statement, as I understand it, based on a study that somebody else has made, that he has expressed his reaction to.

MR. SHENKER: Well, it seems to me as long as he expressed his reaction to the work of another person, you ought to be able to ask this witness to explain what the work of that other person was to which this witness is reacting. That's what a study does, whether it's in any form of quotation; whether it's in question and answer form or otherwise. We have had dozens of statements that have been read from in this proceeding, which were in question and answer form in hearings before the Congress of the United States.

HEARINGS EXAMINER: Mr. Shenker, I didn't permit testimony about the rate hearing going on in the Senate chambers right in the very Montana Power case; and we're not going to get into the Oregon rate hearing that's not even yet in progress in this.

MR. SHENKER: No, we're not going to get into the Oregon rate hearing; but I think we are entitled to test this witness' view as to whether the Colstrip project is more expansive than the other alternatives which he discusses in his statement and which may be conflicted by the views of others.

HEARINGS EXAMINER: Alright, you can question his view of his alternatives; and if you want this other man to come testify, you've got surrebuttal to do it with. And he can come and swear to his statement and put it in evidence here if he wants to.

MR. SHENKER: Is there a question pending, or should I ask another question?

HEARINGS EXAMINER: Well, if you ask another question, it probably would be easier to rule on it.

Q Mr. Woodley, would you agree, sir, that there are those who disagree with your opinion that Colstrip is a less expensive alternative than others for PGE?

A May I restate the question to make sure --

Q No, do you understand the question or not?

A No, I do not, Mr. Shenker.

Q Then I'll restate it for you.

A Thank you.

Q You answer questions; I ask them.

MR. ROSS: If the witness doesn't understand the question, he can ask that it be explained or ask if this is the question you asked.

Q I will restate the question, Mr. Woodley.

A Thank you.

Q Are there those who disagree with you on whether the Colstrip alternative is less expensive than other alternatives for PGE?

A Well, it's impossible to respond to that question without getting into the proceedings presently before the Oregon Public Utility Commission, or because with the exception of the testimony which you've referred to, which is in that proceedings, there is no one who disagrees with this statement that Colstrip is less expensive than any other alternative open to PGE, except nuclear.

Q Who are the people that you know of who disagree with you, Mr. Woodley?

A The only statement that disagrees with that position is a statement that was made before the Oregon PUC by a staff member in the current rate proceedings, which is in progress; and it was made -- and, in fact, the statement itself is unclear. We have not yet had a chance to respond to that testimony because one of the things that we want to know about that statement is just how that witness, that staff witness, concludes that combustion turbine operation is less expensive than the Colstrip project. That is not in clear, it is not explained in his statement, and it is not at all clear from the data that is presently available to either you or I.

Q Does he conclude that the combustion turbines are less expensive than the Colstrip project?

A The statement which you read earlier is not clear whether it is addressing for only the two or three years during which deficiencies could be covered by combustion turbine operation if one assumes that the reduced load forecasts also prepared by the Public Utility Commission staff is correct. We do not agree with that load forecast, and if that load forecast is incorrect and the PGE load forecast is correct, which we believe it is, then his statement is not true.

Q Does he or does he not disagree on the issue of whether Colstrip is less expensive than combustion turbine?

A Assuming the --

Q Either he agrees or he doesn't agree, Mr. Woodley; the answer to that is quite simply. You can explain it after you have made your answer.

A Assuming that the PUC load forecast is accepted, which it is not, then, yes, he says the combustion turbine operation for those three years only, would be less expensive than Colstrip participation during whatever period of time he was talking about, which is not at all clear because it is not included in this statement. I'm sorry, there is no yes or no answer to your question, Mr. Shenker.

Q Well, the record will say for itself whether it is possible to make a yes or no answer. But what are the years the deficiencies were forecasted by PGE?

A The years that the deficiencies were forecast by PGE that are addressed by Mr. Colburn's statement are '80-81, '81-82, '82-83; three operating years.

Q What were the loads which you think were assumed by the folks who disagreed with you that were lower than yours?

A The only data that I have available with which to respond to that question is the electric energy sales' forecast in millions of kilowatt hours exclusive of sales for resale, prepared by the PUC staff.

Q What were the differences?

A In 1980, the staff forecast is 14,616 for that same year.

Q That's in millions of kilowatt hours?

A That's right. For that same year the PGE forecast was 16,000,480

Q Sixteen thousand, four-hundred and eighty?

A I'm sorry, yes, 16,480 millions of kilowatt hours. The '81, '82 and '83 years, I do not have the PGE forecast data in front of me; I only have the PUC staff forecast.

Q What were those?

A But generally the ratio would be about the same. The staff forecast energy sales in millions of kilowatt hours for 1981 was 15,284; and in 1982 is 15,969, and in 1983, 16,655; and, of course, to make the record complete, we would have to recall from one of your own witnesses, Doctor Shah, who similarly prepared a forecast for PGE, which at about this time, in this same time, crossed over our forecast and showed values considerably greater than the PGE forecast.

Q Do you know what Doctor Shah's instructions were as to the forecast that he was to make?

A I'm only familiar with the statement made on page 48 in Doctor Shah's testimony.

Q Do you know what his instructions were as to how he was to prepare his forecast; yes or no?

A I am only familiar with the statement made by Doctor Shah on page 48 of his testimony.

Q Did you understand my question, Mr. Woodley?

A If the instructions are contained on page 48, yes.

Q Well, on page 48 of Doctor Shah's testimony, is it your statement now under oath that Doctor Shah sited what his instructions were as to how to prepare a load forecast for PGE?

A As I recall, no.

Q Thank you. Now, Mr. Woodley, the issue of whether Portland General Electric Company has overstated its load forecast has been considered not only in connection with rate proceedings for PGE where it has obvious implications, but also in connection with the nuclear regulatory commission hearings involving Pebble Springs as one of the PGE resource alternatives; isn't that true?

A That's correct; the need for power has been an issue in the Pebble Springs hearings, and was raised by the intervenors.

Q And by unanimous vote this month, Mr. Woodley, the 7 members of the nuclear regulatory commission -- excuse me, of the Energy Facility Siting Council, in this particular instance, determined to reopen the Pebble Springs hearing in order to reexamine your load forecasts; isn't that true? The answer to that, of course, is yes or no; and then you may explain.

A The reason for --

Q The answer is yes or no, and then you may explain.

A No, that is not the only reason for reopening the hearings is to examine the load forecasts.

Q Is that one of the reasons?

A That's one of the reasons, not stated as such.

Q You may explain your answer further now, if you wish.

A The whole question of whether or not a utility is overstating or understating its load forecasts has been raised in many different arenas; and, of course, in most of those cases where overstating of the load growth is accused, the accusations are made by parties not having financial liability for the consequences of falling short of meeting the statutory requirements for serving customers' demand -- energy requirements upon demand. And so it behooves the utility to very carefully determine what it's going to put forth as an official forecast because understating the load means we run the risk of not having resources available to carry that load, which we are bound by law to carry. Overstating that load means we run the very serious risk of building too much capacity and straining the capital structure of the company beyond its ability to carry it.

Q What other financial implications are there to overstating your load?

A The financial implications to overstating load, as I said, first of all means you have to provide more capacity than you might actually need. It also means that more rate action would be required than time would show to justify, which would put the company in a very embarrassing position.

Q More rate action?

A More rate increase requests under the current economic trends.

Q You mean the customers would have to pay more, or at least you would ask that the customers would have to pay more?

A It would mean that we would have to go to the commission for rate relief more often, yes. But that would catch up with you very quick if we were wrong.

Q And I suppose that's the reason that those folks that have to look at your requests for rate increases are concerned with the statement of what your load is, because they have to made the determination of what rate increases, then, you should receive?

A That's correct.

Q Sure. Now, in looking at the Colstrip project and PGE's present participation in it, Mr. Woodley, is it your testimony that the use of combustion turbines and combined cycle generating facilities now owned by the Portland General

Electric Company are not an alternative that could be considered, whether they are more or less economical; that is to say, irrespective of the economies involved?

A Irrespective of the economies, there are a couple of very serious problems with combustion turbine generation for baseload operation. Colstrip is a baseload unit. Combustion gas turbines are peaking units and emergency units for short periods of time. So the equipment basically is not designed for baseload operation, number one. Number two, fuel ability for baseload operation is a very serious question; because, as you know, a combustion gas turbine is run on petroleum. It is presently not the direction of our national government to increase willfully the production of electric energy utilizing petroleum resources. And, of course, that's what we're talking about; and, of course, notwithstanding the economics, we face a grave danger of having that petroleum supply unavailable or substantially diminished when we would need it for baseload generation by combustion gas turbines. Combustion gas turbines are not a very efficient machine in terms of thermodynamic efficiency. They are designed for short-term operation to cover the peaking, and with combined cycle addition down into the intermediate range; but -- and, of course, the combined cycle is a means of improving the efficiency. So those are the responses I would give you, exclusive of the economics. Then, of course, we should also discuss economics; but if you choose, I'll omit that.

Q Is it your testimony that Portland General Electric Company did not build its combined cycle facilities for baseloading?

HEARINGS EXAMINER: Mr. Shenker, are you referring to the testimony he's offered in evidence in this rebuttal? What portion of it, I don't know. I may have gotten the wrong statement from somebody, but the statement I've got deals with the cost of shipping coal by rail versus transmission in rebuttal to your Exhibit #32 on the Northern Great Plains resources.

MR. SHENKER: I am referring to page 4, line 5, where the witness refers to an evaluation of actual alternatives and current costs. The statement is not limited to specific alternatives at that point. I am exploring his statement with respect to actual alternatives and current costs.

HEARINGS EXAMINER: And the Northern Great Plains Study is what he's rebutting, I understand, but you're --

MR. SHENKER: No, sir. The Northern Great Plains Study is not something that we put into evidence.

HEARINGS EXAMINER: That's not the exhibit it refers to over here?

MR. SHENKER: No, sir. The confusion is obvious to see. There's a company called the Northern States Power Company; it is not the Northern Great Plains Study.

HEARINGS EXAMINER: Okay. That's what I was looking at my thing trying to figure out.

Q Now, Mr. Woodley, it is not your testimony, is it, sir, that the Portland General Electric Company built combined cycles for peaking capacity only?

A The combined cycle units were initially -- well, initially you're referring to the Beaver generating plant. The Beaver generating plant was originally built as a simple cycle combution gas turbine plant. The hours of operation on that plant were hoped for to be low because of the inherent inefficiencies and high costs of operating simple cycle gas turbines. The steam cycle was added, thus making the plant a combined cycle operation so that we could increase the hours of operation from high peaking into the intermediate range, thus incurring a lower economic penalty than for simple cycle operation. But the true baseload resources for the Pacific Northwest presently are constituted by hydroelectric, nuclear and coal. Combined cycle combustion gas turbine is not a baseload resource. Its raw energy resource or raw energy source is petroleum, and petroleum is not regarded as a baseload energy raw resource.

Q In your load forecast, Mr. Woodley, do you not show combined cycle and combustion turbine facilities for resources for average energy?

A Average energy does not mean baseload.

Q Do you or don't you?

A Of course. Of course it's shown for average energy.

Q Do you disagree with Mr. Bredemeier of Portland General Electric Company as to what your combined cycles were built for baseloading?

A The combined cycle plant --

Q Do you agree with him or not was the question.

A -- was not --

Q Just a moment, Mr. Woodley --

A -- constructed for baseloading operation.

Q Just a moment, Mr. Woodley. I asked you a simple question.

A I gave you a simple answer.

Q Do you agree with Mr. Bredemeier or don't you; the answer to that question is yes or no, and you may explain your answer thereafter.

A Well, you tell me what Mr. Bredemeier said and I'll tell you whether I agree with him.

Q Ah, you mean you were answering the question without knowing what Mr. Bredemeier said?

A The question that you put to me was whether or not combined cycle units were built for baseload operation; my answer to that question is no, they were not.

Q Yes, I heard you give that answer several times now, without my having asked the question; and my question to you was, and is, whether you agree with Mr. Bredemeier, Portland General Electric Company, on whether the combined cycles were built for baseloading? Now, either you agree with him or you don't agree with him; if you don't know what his position is, I suppose in all honesty, sir, you would have to say you don't know.

MR. ROSS: I also don't know if the record shows if that is Mr. Bredemeier's position.

MR. SHENKER: I haven't said what his position is, Mr. Ross. I wouldn't want to have Mr. Woodley misled by my telling him what Mr. Bredemeier said. I'm only testing this witness' knowledge.

WITNESS: Of what Mr. Bredemeier said?

MR. ROSS: And we don't know what Mr. Bredemeier said?

MR. SHENKER: We do, it's in the record; but we want Mr. Woodley to tell us, if he knows, whether he agrees with Mr. Bredemeier on that subject.

Q Do you know, and if so, do you or don't you agree?

A I don't know what the record shows that Mr. Bredemeier said on that subject.

Q Did you discuss that question with him?

A Mr. Bredemeier and I work quite closely and we are both fully aware of why the combined cycle units were built; and I doubt that you'd find any disagreement between the two of us on that matter.

Q Okay, sir, the record in intended to probe your doubts and that of others. Now, further to explore your evaluation of actual alternatives and their costs, what have you done, Mr. Woodley, to compare the transmission of coal by pipeline with the transmission of coal by unit train?

A Comparing the cost of coal transport by coal slurry pipeline is something that I'm very much interested in; and I have been involved in the work being done by Gulf Interstate Engineering for the Pacific Northwest Pipeline Corporation. Northwest Pipeline is proposing to build a common carrier pipeline from Wyoming to Boardman.

Q Boardman, Oregon?

A Boardman, Oregon, yes. This work is being done by Northwest Pipeline at no expense to us, other than our counsel and guidance in providing data on which the study is based. So the costs comparing coal slurry pipeline delivery versus unit coal train delivery to Boardman are costs that have been produced by Gulf Interstate, not under my direction or control. However, they indicate to us that what they will do is make the cost of delivering coal from Wyoming to Boardman, in the early years of the project, competitive with rail; and then resuming rapid escalation of rail, which has historically been the case, there will be a point at which the coal delivery by pipeline would be less expensive than rail. And that point varies, depending upon the particular alternatives investigated for the pipeline; but it's generally 5 to 10 years into the project life.

Q That sounds like it has very serious implications for your decision on how to get coal to your Boardman plant, doesn't it?

A It has implications in that what we are concerned about is how much expense should we put into the design of the plant to accommodate dewatered slurried coal. That is our concern.

Q Sure, if we could put it into perspective in the concept of cost consciousness, which you described before in terms of your capital investment and the rate action that you would have to be involved in; if, in fact, you would have to pay substantially less over the lifetime of the plant for the operation of a plant fueled by coal that came by pipeline than for a plant fueled by coal which came by unit train, then certainly the folks who look at your rate requests would be very much interested in that kind of information, wouldn't they?

A Absolutely.

Q And you would too, wouldn't you?

A You bet.

Q Sure. I take it, then, that your involvement, interest, negotiations, or whatever stage they've reached at this point with the Gulf Interstate Engineering Company and Northwest Pipeline Corporation of Salt Lake City, is on an active and ongoing basis; would that be correct?

A Well, active in that we are discussing it; but as you know, Mr. Shenker, the whole pipeline proposal hinges upon federal legislation being passed which would grant a pipeline the right of eminent domain. Without that legislation, the pipeline project is simply not feasible; I mean, it's an impossibility. So --

Q It would require eminent domain coordination with every state that is intercepted, wouldn't it?

A That and more, yes.

Q Now, is the Pacific Power and Light Company joining with you in these negotiations and explorations for how to deliver coal from the areas that you've described into Oregon and Washington?

A I would refer to it as explorations, and yes, Pacific Power and Light has been involved to about the same level that we have.

Q Do you know where the principals of the Northwest Pipeline Corporation are?

A Northwest Pipeline is a wholly owned -- no, I'd have to say I'm not intimately familiar; whatever I'd say would probably be wrong.

Q Well, give it a try, Mr. Woodley, you were about to say it was a wholly owned something or other. We don't have to hold you to what the court documents say; what's your understanding?

A That's what I'd be afraid of making the wrong statement.

Q Tell us what is your understanding.

A I believe it's the Northwest Energy Corporation that owns Northwest Pipeline.

Q Who's that?

A It's a corporation headquartered in Salt Lake City.

Q Do you know whether any other major corporations are co-venturers or joint-venturers to make up that company?

A No, I do not; perhaps the Mormon Church; I don't know.

Q Do you know of a company called ETSI?

A Yes.

Q Who's that?

A ETSI has Bechtel involved to about 50 percent, and then one or more transportation companies for the remainder; and I can't quote the participants in ETSI.

Q What do they do?

A I believe systems -- no, let's see -- systems fuels -- I don't know.

Q Well, they're in pipeline engineering and exploration, aren't they?

A ETSI is, yes, Energy Transporation Systems, Incorporated, and they are promoting a pipeline from Wyoming to Arkansas.

Q Now, in the course of your deliberations in this prospect, Mr. Woodley, have you looked at the possibility of transporting coal by pipeline from Montana west?

A The current Northwest pipeline proposal, or study, I should say, included as one alternative case, a point of origin or a coal slurry preparation point in the Decker fields; and that is the only case, as I recall, that included a Montana coal, which, of course, is Pacific Power and Light's interest.

Q Well, of course, Pacific Power and Light has an interest similar to yours, though, in terms of the delivery of that coal to coal-fired generating stations in the areas of Oregon and Washington?

A Correct, from their Decker reserves.

Q Now, Mr. Woodley, if you're looking at the question of actual alternatives and current costs, knowing what the consequences are of overstating or understating the loads; I take it you also are looking at, are you not, the effect of conservation on your load forecasts?

A Well, Mr. Shenker, I think maybe you have made the wrong interpretation of line 5 on page 4 of my statement about actual alternatives. The definition of alternatives there relates specifically to mine-mouth generation and energy transport by wire versus rail haul delivery of coal to a load center plant. Those are the alternatives being referred to in this statement. True, the alternatives that you are questionning me about are important to energy resource planning; but they are not the alternatives I'm referring to on page 4, line 5 of my statement.

Q Well, you get rather broad in your reference to the Arab oil embargo and the effect it may have had on our energy planning.

I thought it might be appropriate to ask you, sir, as to the breadth of your work in looking at such alternatives caused by the oil embargo, or otherwise; have you made a determination of what it will save for Portland General Electric Company's customers for you to effect any given amount of conservation.

MR. ROSS: I'm going to object. I think this is, as the witness just described, beyond the scope of his rebuttal testimony.

HEARINGS EXAMINER: Sustained.

Q Have you, Mr. Woodley, looked at actual alternatives and their current costs today to determine whether there will be any savings that would be measurable in terms of a difference between unit train haul or mine-mouth generation and transmission delivery?

A Yes, yes, I have.

Q Oh, good. Tell us, then, what alternatives you have looked at that you can measure, aside from unit train haul and transmission lines, which you can describe for us as related to the costs of those two different facilities?

A I thought you'd never ask. The actual alternative, that I've studied in great detail, of course, is the cost of mine-mouth generation versus what I will loosely call a load center plant; because Boardman really, in the strictest sense, I wouldn't even consider that a load center plant to Portland General Electric. It's still 140 miles from our service area.

Q One hundred and forty miles?

A Oh, yes.

Q We had some dispute about that the other day with another witness, so I'm glad to have the figure stated from your mouth.

A Well, it depends on where you measure it from.

Q From Boardman to where is 140 miles?

A Well, Boardman to a 230 kV bus in the Troutdale area would be 140 miles; it's a number I use for calculating wheeling charges from Boardman in to our service area.

Q Troutdale is a suburb to the city of Portland?

A Yes, on the east side.

Q Troutdale is where Reynolds Metals Company has its aluminum plant?

A I believe that's correct, yes. So the actual alternatives that I'm most familiar with, of course, include the rail haul of coal from Wyoming to Boardman where it is converted to electric energy and then transmitted on to the load center in Portland versus mine-mouth generation at Colstrip, which is the only mine-mouth project we participate in other than Centralia.

Q You've described those in your statement, Mr. Woodley. Just make sure you understand my question now; what other alternatives have you considered that you can relate to those alternatives? Let me give you a for instance, okay?

A Like a coal slurry pipeline?

Q Oh, something like that, or whatever alternatives you have that you've come up with; for example, you can tell me unit train haul is twice as expensive as going by transmission from Colstrip and we find that conservation would result in 4 percent of the savings that we would otherwise effect. Now, that's a possible answer, but I don't know what your answer is; I'm just giving a for instance of the question I'm asking. Okay?

A Okay.

Q Fine.

A That's still beyond the alternatives that I'm referring to on page 4, line 5.

Q I understand; go ahead. You're in the middle of an answer. I just want to make sure that we weren't going to waiver into some other question; go ahead.

A I'm not real sure which question we're answering, but alternatives considered that would be comparable to unit train coal and mine-mouth coal would be nuclear. As I stated earlier, our baseload energy sources are hydroelectric, nuclear and coal. And as I have testified previously, the economic choice for baseload energy generation by thermal means is nuclear; and if you compare the alternative of nuclear with either of the two coal alternatives, and I think I would be safe in throwing in the coal slurry pipeline, you would find that the economics very much favor nuclear. But, of course, as you know very well, coming from Oregon, Mr. Shenker, there are a great deal of uncertainties clouding the horizon at the present time on the nuclear alternative. So, this gets into the issues that go beyond economics that one must consider in planning resources to minimize the risk of loss of load or failure to carry the load that is required. And as far as alternatives beyond the nuclear and the coal, we then get into more -- first of all, in the time frame, we get into the intermediate and peaking generation alternatives, which include combined cycles, simple cycle gas turbines, peaking applications which include pump storage and other energy storage means; but, of course, energy storage is not a problem to us for some time. Currently our problem is an energy problem, not a capacity problem; and, of course, all storage means are net consumers of energy, not producers of energy. I think that pretty well rounds out the alternatives that we would look at in the current time frame. If you're interested in exploring alternatives that are more futuristic, which some refer to as the exotic, I'm fully qualified to comment on some of those.

Q My colleague, Mr. Graybill, expressed an interest in asking you about some of those.

A That's fine.

Q Mr. Ross may want to ask you about some of those too, but I think I won't ask you about those quite yet, Mr. Woodley.

MR. ROSS: I don't think the Hearings Examiner will let us ask him.

Q Well, I'm trying to get some dollar signs on it, if I can. I didn't hear you talk about the effects that conservation would have in terms of the current costs, dollar savings for your rate payer; have you studied that one?

A No, my job is, as my title implies, generation resources. I'm concerned with putting together adequate resources to match the load projections that the company is making, and I am familiar with the load projections from that standpoint. If I may go on --

Q By all means.

MR. ROSS: Again, I'm going to object. I think this is beyond the scope of rebuttal and it's repetitious.

MR. GRAYBILL: I object to your interrupting the witness when he's trying to answer a question, Mr. Ross.

MR. SHENKER: There wasn't any question; he was finishing an answer, Mr. Ross, that's not courteous.

HEARINGS EXAMINER: I don't think we've got a question before us, we're on an answer, so I can't overrule your objection.

Q Did you want to finish your answer, Mr. Woodley?

HEARINGS EXAMINER: Did you answer, or he can ask another question. Do you feel that you adequately had an opportunity to answer the question you were answering, sir?

WITNESS: Yes.

HEARINGS EXAMINER: Alright, next question.

Q As you look at these cost questions, Mr. Woodley, you just told us what your particular job function is, as your title would imply and as you discussed it previously; isn't one of the things you look at the rays of hope that you from Portland General Electric Company describe in these pamphlets called "Solar Energy"?

MR. ROSS: I'm going to object. This is beyond the scope of rebuttal and, as the witness has stated, beyond the scope of his responsibility.

MR. SHENKER: Well, I'm talking about generation.

HEARINGS EXAMINER: Will you repeat your question please, Mr. Shenker?

MR. SHENKER: Sure.

Q Mr. Woodley, as you look at these alternatives, isn't one of the things that you have to consider the rays of hope, which is the title of that pamphlet the Portland General Electric Company published on solar energy as a generating facility?

HEARINGS EXAMINER: Alright, I have your objection in the record. It's overruled. You can answer.

A The brochure that you are waving at me does not refer to, as I recall, solar energy as a generation resource. I think it refers only to solar energy for space heating and cooling applications. That was not prepared under my direction nor control, and I really am not aware of what it contains. If you'd like to show it to me, I'll comment on the content of it. But as I stated, my primary concern -- I'm really not trying to be evasive on this, is the generation of electric energy from raw energy resources. The raw energy resources that I would consider in all time frames would include solar, would include geothermal, would include wind, would include even tides, hydroelectric, nuclear, coal, oil, natural gas, synthetic gas, methane from animal wastes, biomass fuels; all of those raw energy resources are things that we consider to be potential components of the PGE generation resource inventory at some point in time and each of them are being evaluated to varying degrees, depending upon what we feel is appropriate when you consider the state of the art of technology for each of those resources.

Q I don't want to mislead you, Mr. Woodley, so I'll certainly pass this pamphlet to you. It does say on the first page that one of the things they are looking at is the generation of electricity and the high technology of solar energy. That hasn't happened yet, as I understand it, because research certainly has not completed --

A Right, that is high technology; it would be considered to be in very preliminary R & D phases.

(Mr. Shenker gives brochure to witness to examine.)

A Okay, yes, the brochure does refer to the various forms of utilizing solar energy to generate electric energy, as I just mentioned. It does include solar thermal conversion, wind energy, direct photovoltaic, and bioconversion, ocean thermal gradients, and that's about it. Then, of course, they are treated in only a very superficial manner. The remainder of the brochure is given over to things that, of course, are very high interest to our ratepayers and consumers, which is solar heating and cooling of buildings.

Q Now, my question to you in that connection, Mr. Woodley, is, to what extent will the use of solar heating diminish any demand for electricity?

A Well, we feel that the impact may be approximately 5 percent of our new residential forecasts in about 1995. That's our present estimate of the impact of solar energy to heat buildings in our service area, as it impacts our load forecast.

Q You would agree, would you not, Mr. Woodley, with the ethics of energy conservation, that less energy growth means important environmental savings so that a barrel saved is figuratively worth more than a barrel found?

A I agree with energy conservation and the wise and efficient use of energy; and I feel that as energy costs rise, we're going to find that the consumer can justify expenditures for equipment like electric driven heat pumps, which will greatly improve the utilization efficiency, and/or conservation, they are synonymous in this usage. And yes, I do support that.

Q I just marked this DNR Exhibit No. 44, the pamphlet that we were looking through before for illustrative purposes; that is the correct pamphlet, that is the one you were looking at?

A Yes, I presume so.

Q Now, Mr. Woodley, with respect to the rail rates applicable to the Northern States Power Company, those are subject to an established territory, are they not?

A Yes, well, the rate that Northern States Power currently has in effect, the tariff that is published is between Colstrip and Sherburn County; to that extent, yes. Now I'm not sure if they have any others currently under negotiation; so, I'm aware of that one.

Q Tariffs are not written in stone, are they, they're written on plain pieces of paper and the party to the tariff, particularly the rail carriers, come before the Interstate Commerce Commission whenever they want to change it; right?

A Tariffs are not changed whenever either party wants to change them.

Q You have to apply for a change in tariff, don't you?

A That's right.

Q And did you expect that in due course of events if there is to be shipment of materials by unit train from someplace in Montana to someplace in the western coast area of the United States, that that eventually would find its way into a tariff?

A Oh, yes.

Q And those tariffs would also be subject to the applications effected before the Interstate Commerce Commission for whatever they thought would be the best way they could be treated, and the ICC would make up its mind; right?

A It's not quite that simple. It's been complicated by the new rail reorganization act, which has somewhat changed the ICC's role in making these determinations. Generally what you say is true; but be careful, it can be misleading. I have been misled by those kind of general statements myself.

Q Negotiations are not easy; they are rather complicated negotiations, aren't they?

A They are very complicated and very difficult.

Q You described for us previously that your druthers would be when you walk into a negotiation that you've got as many bargaining levers as you've got available; right?

A You bet.

Q That, of course, would be the position of the Northern States Power Company too, in that same general context, isn't it; they want to be in the best bargaining position they can be?

A They are fortunate in that they already own a unit coal train tariff which is probably -- and it was written in pre-1974, which is probably, it pretty much is the trump card. You simply don't need much leverage beyond that.

Q In 1971 they didn't have that bargaining lever, so they just got into the act before you did in terms of negotiations, right?

A That's correct.

Q By the way, do you know whether in 1971 there were any shipments of coal from Montana to Sherburn County, Minnesota?

A Prior to '71?

Q No, in 1971?

A No, no, no, no. The actual movement of coal did not start until last year.

Q I see. Why did that happen; why did the negotiations take place so much in advance of the actual shipment?

A It establishes the base rate and then ties the rate to the escalation formula. It's agreed on by both parties when the tariff is enacted.

Q So that when a tariff is enacted, you would have not only the base rate, but also an escalation percentage that would be part of this tariff?

A That's correct. Well, the escalation percentage is not a part of the tariff; only the formula is a part of the tariff. The escalation percentage is derived from the various indices that it's keyed to.

Q Well, you've been negotiating or participating in the negotiations with Burlington Northern yourself; have you not?

A That's correct.

Q What's the figure that you're trying to persuade them to accept as a tariff, and what percentage escalation are you trying to persuade them to accept?

A Well, you don't try to persuade them to accept a percentage escalation.

Q Or de-escalation; which is what you'd like.

A That's true. We'd be satisfied with no escalation.

Q Sure. What numbers are you working from?

A Let's see; we talked about this during my previous testimony in your cross-examination of me, and, as I recall, I commented that the --

Q You said "low" and they said "high" and you didn't give me numbers within low and high.

A Maybe I ought to stick with that then.

Q Well, I've asked for some numbers, so I'm afraid you'll have to give me some.

A Yes, you have. The number that is currently laying before both of us is $11.27 per ton.

Q You haven't accepted that number, have you?

A No, we have not.

Q What escalation figure is currently laying before both of you?

A Well, the escalation figure is not known to either of us. The formula that the BN uses; and there are two lines, of course, involved in transporting coal from Gillette to Boardman, BN and the UP. The BN keys their escalation to what boils down to be 80 percent of the escalation of the AAR index.

Q How does that work out in numbers?

A You are persistent.

Q Yes.

A The AAR index is what we have, my own people have attempted to forecast, to predict; and we've come up with two numbers based upon what you want to assume for the GNP deflator and other things in the economy. We've come up with two numbers; one is at the rate of 7 percent per year, the other is at the rate of 8 percent per year. Now, if you take and plug those two rates into the escalation formula, you'll come up with a range between 5.6 and 6.4 percent per year escalation. That's what we are currently using in predicting what the rail rate will go to over the life of the project, which gives us, if you will, a band width.

Q I'm sorry; I didn't hear that. "It gives us, if you will," what?

A A band width; the low being 7 percent, the high being the 8 percent escalation rate of the AAR index.

Q Now, I want to ask you some, Mr. Woodley, about the comparison you make on page 3 of your statement when you looked at what the Northern States Power Company was comparing, at line 23, starting at line 22; you look at the perspective of the Northern States Power Company, that they were looking at mine-mouth generation versus rail haul. Now, at mine-mouth you say they were looking at 6500 BTU per pound lignite and transmission 500 miles to Minneapolis, Minnesota. Where was the mine?

A In North Dakota.

Q Okay. And your next sentence is the one that puzzles me; line 26, you say, "Lignite cannot be economically transported for long distances because of its low heat content." Did you have the impression that somebody was proposing to take lignite by rail and ship it to a load center generating facility?

A It's being done.

Q And who was it that was making that proposal?

A But not for long distances.

Q How long a distance?

A I believe the Big Stone plant in North Dakota is about a 60-mile haul.

Q Sixty miles. And I take it your point, Mr. Woodley, in your testimony, is that Northern States Power Company was comparing obtaining coal by rail, some 850 miles, of a different BTU content because it was different coal, with the obtaining of power from a mine-mouth generating facility having different coal with different BTU content; is that the point of your testimony, that Northern States was not looking at the comparison of the shipment by rail or wire of the same coal?

A Yes, that's the point. The point I was making is that the previous question that you've directed at me was generally along the lines of the relative economics of transporting subbituminous coal over long distances by rail versus mine-mouth generation, using the same subbituminous coal as the raw energy source, and transmission by wire. The thing that I'm pointing out in this statement is that Northern States study is looking at what are real alternatives for them; but in terms of applying that study to mine-mouth generation at Colstrip versus transporting coal from Colstrip, it's not appropriate, because it's a different raw energy source. It's lignite; it's not subbituminous coal.

Q So Northern States is looking at coal from Montana by rail versus coal from North Dakota by mine-mouth transmission?

A Lignite.

Q Alright; but the coal from Montana was subbituminous, not lignite; the coal from North Dakota was subbituminous, lignite?

A Not subbituminous. It was lignite.

Q Of course, within the coal classification scheme, if you are subbituminous, you can be lignite; can't you?

A Lignite is a separate classification.

Q It's less than bituminous, in terms of the BTU content?

A The BTU content is lower, yes.

Q Now, when you --

A Some other essential differences too.

Q When you and Portland General Electric Company were looking at Colstrip as a transmission source with mine-mouth generation, you were comparing that in the real world of the plants that you were then contemplating the building of; namely, Boardman Carty, with coal coming from Wyoming by rail or some other means; isn't that right?

A Not just Wyoming. You recall the table that we talked about at great length previously; we looked at numerous coal sources, including Montana; including, indeed, Western Energy at Colstrip.

Q Okay, you included Montana, Wyoming, and what other sources? What other states where there was coal?

A Utah.

Q Alright, you looked at coal from Utah, coal from Wyoming, coal from Montana, not all of which was coming from the Rosebud seam at the Colstrip site; and you compared those eventually with the transmission of power from a mine-mouth generating station at Colstrip; right?

A Yes.

Q What was the BTU content of the coal from Utah?

A As I recall, it was fairly high; probably in the range of 9,000 BTU. I would have to refer to that exhibit to be specific.

Q What is the lowest BTU content of any coal which you have considered for shipment to Boardman for your coal-fired generating station there?

A Eight thousand.

Q And the reason that the BTU content is so significant, Mr. Woodley, I take it, is that that determines the amount of coal that you have to put in your boiler to burn in order to get some electricity; isn't that right?

A That's right.

Q And that, in turn, is a cost question, isn't it, for the amount of coal that you have to buy and feed into the boiler?

A Yes.

Q Than I take it from your testimony and more particularly from your statement that you have made here this afternoon, that were you in Northern States Power Company's shoes when they made their decisions, you would have made that same decision, wouldn't you?

A If those were the alternatives facing me, yes, I would; I would agree with that. And, of course, the decision was not all economic. The state of North Dakota has passed a law refusing eminent domain to transmission across the state for energy that is not marketed in the state; so there are serious doubts whether Northern States Power, and this is being tested in the Supreme Court of North Dakota; there are serious doubts that Northern States Power could ever build transmission from a mine-mouth plant in North Dakota to serve load in Minneapolis. So with that kind of an uncertainty, that gets into the noneconomic impacts that one has to consider.

Q I'm glad you brought that up, Mr. Woodley.

A I figured you would be.

Q I'm also glad that you're glad; now you can tell me, if you will, if you know, when was the law to which you just referred enacted in North Dakota?

A I don't know.

Q And when was the Northern States Power Company decision made?

A The decision to build Sherburn County?

Q By unit haul train fueling the facility at Colstrip, yes.

A Did I have that in my statement? It was either 1969 or 1971, I'm not sure. There was one decision, according to my conversation with Mr. Forrest. As I recall, it was 1971.

Q Okay, you just anticipated my last question to you, Mr. Woodley. Sort of, with your voice trailing off, you said "in your conversation with Mr. Forrest." I was going to ask you if you had spoken to Mr. Forrest; and I take it, now, the answer to that question is yes, isn't it?

A I can answer that one, yes, very simply.

Q Have you ever spoken to Mr. Forrest prior to the time that you reviewed DNR Exhibit No. 32 from this proceeding?

A No.

Q Do you know what the date of that exhibit was?

A January 8, 1976.

MR. SHENKER: Okay, I have no further questions of at this time, Mr. Woodley.

HEARINGS EXAMINER: Mr. Graybill.

Rebuttal, Cross, by Northern Plains Resource Council

By Mr. Graybill:

Q Well, let's start at the end, Mr. Woodley. Do you not know that the North Dakota decision is a court decision and not a law that prompted the decision to move by unit train instead of by power line? In other words, do you know of any law that's been enacted to that effect in North Dakota; isn't it true that it's a court case where the judge said that they couldn't do that?

A I was not familiar, for obvious reasons, with the North Dakota case. Up until now I didn't think it impacted us. And this came out in my discussion with Mr. Forrest; and as I recall, he said there was a law in effect which had been challenged in the courts and was now before the Supreme Court in the state. That's what I recall him saying.

Q The eminent domain law is being challenged, but the point is, is the one that you raised in your answer; and that is whether or not you can transmit electricity across the state by eminent domain for a completely non-state use; didn't you understand that was the issue?

A I'm not sure I understand your clarification.

Q What's happened in North Dakota -- I just want the record clear -- what's happened in North Dakota is that the judge has said they can't use the local eminent domain law to move power completely out of the state; and that's the issue, whether or not the eminent domain law will allow you to move power across North Dakota by eminent domain. You were talking awhile ago with Mr. Shenker about the fact that one of the problems with coal slurry was that there was no eminent domain right for coal slurry; right?

A That's correct.

Q Well, in North Dakota, there's no eminent domain right, according to this one judge, for power that moves by transmission lines completely out of the state; and that's the trouble there. I just want the record clear on the issue.

A That still doesn't change how it would impact the decision of whether you should carry the coal, in Northern States' case, by rail from Montana or the energy generated from lignite in North Dakota by wire. If that alternative is precluded, obviously, they would use the unit train.

MR. ROSS: I'm not sure if, Mr. Graybill, that was testimony on your part or a question; was that a question for the witness?

MR. GRAYBILL: Well, I felt it would be unfortunate if the record contained an indication that North Dakota had passed some kind of a law, when in fact it hadn't. I think the witness and I have cleared up the record, Mr. Ross. If you'd like me to review it again, I'd be glad to.

HEARINGS EXAMINER: I don't think that will be necessary.

Q I understand the thrust of your statement to be, first, that you disagree with this Northern Power Company exhibit; but then, secondly, on page 4, beginning at line 16, I understand the thrust of your testimony to be that you have found it more costly at Portland General to move coal by unit train than to transmit it by power line; isn't that the thrust of your testimony?

A Yes.

Q Okay. On Line 16 on page 4, you say, "For Portland General Electric Company it is more costly to ship coal by unit train from Gillette, Wyoming, than to transmit electricity from the mine mouth generation at Colstrip." And I note that you have said, "For Portland General Electric Company it is more costly . . ." But down on line 25, where you generalize from this case to all of the Pacific Northwest companies, you say, " . . it would be more costly to ship coal by unit train from Colstrip to Boardman and the Pacific Northwest than to transmit electricity from the mine mouth generation at Colstrip." My question is, do you mean in the second case where you're generalizing, do you mean it would be more costly to Portland General than to the other power companies, or do you mean it would be more costly to everybody?

A What I am saying is that I know for a fact that it is more costly -- that the energy costs resulting is going to be higher from a plant that receives coal by unit train from Gillette, Wyoming than for the energy delivered from the Colstrip mine-mouth generating plant for Portland General Electric; that I know for a fact.

Q Do you mean the energy costs to Portland General?

A That's correct.

Q Because that's what you say on line 16.

A And that's what I mean.

Q You know that for a fact, as you say, which is apparently more positively than ordinarily; you know that for a fact because you've done some studies on that; right?

A I've done considerable studies on that, yes.

Q And your studies were made on behalf of Portland General, as an officer of the company, weren't they?

A Not as an officer of the company, but yes.

Q As an employee?

A As an employee.

Q You mentioned your title awhile ago; I've forgetten exactly what you are. But in any event, you were making these studies to find out if it was more costly to that company; right?

A Yes.

Q And you found out that it was more costly to the company, according to your analysis?

A Yes.

Q But now, I'm asking you if, in fact, there may not be other costs than costs to Portland General involved; for example, in the Colstrip power line case, all of the farmers along the route are going to have various difficulties from now on because of the power line; and I'm not asking you to ascribe the cost of that, but you would recognize, wouldn't you, that putting a power line through a man's irrigated field does have some economic effect on him; wouldn't you recognize that?

A Probably.

Q And what you've calculated is the costs to Portland General, not the costs to the farmer; right?

A Well, our economic system works such that I presume the farmer is going to expect to be remunerated to the extent that the power line would infringe upon him economically; and, therefore, the project would be charged with those various right-of-way costs that this sort of thing would be lumped into; and then the project costs will be reflected to Portland General Electric as a bill that we must pay for our participation. So, ultimately, those costs to your farmer, as you give the example, should, if the economic system works properly, which I believe it does, result in a cost to Portland General Electric Company, which is exactly what I state.

Q Well, I think that, like Adam Smith, you stated the problem theoretically very clearly; but unless the farmer hires an excellent lawfirm, one of which I could recommend, he may not be able to get -- are we allowed to advertise at this hour, Carl?

HEARINGS EXAMINER: At this hour, I think. (laughter) Unless he does that, the farmer may not actually end up getting all of the real costs back out of his project. In other words, from your vast experience in the industry, and I'm sure you have had experience in building other lines; you're aware that some farmers go to condemnation and get more money than the ones that originally signed up, aren't you aware that that happens often?

MR. ROSS: Mr. Hearings Examiner, I'm going to object again; I think we're getting far afield from the rebuttal testimony of this witness.

HEARINGS EXAMINER: Well, he can answer the question. I think he did; he said he thought those costs were with the right of ways, as far as he knows. That's about how far you can go, I suppose.

Q I didn't hear your answer, if you answered.

A I've lost track of where we were.

Q My question is, don't you know that some farmers get a higher cost by fighting condemnation action than other farms who sign up initially?

A I've not been involved in those actions; but I've been told by my colleagues who have that, yes, there are occasionally some discrepancies between property owners.

Q And so that would represent differences in the farmer's ability to recover costs; and in some places, land is actually taken out of production by the power line; isn't that true?

A That's true; but again, that should be reflected in the costs to the project for acquiring the right of way; and if you're implying that the injection of a qualified lawfirm perturbs this system, I guess I would have to agree with you.

Q I'm not disagreeing with you that somebody might make an estimate of what is a proper cost for taking land out of production. Did you, in preparing the studies which led you to your conclusion as a fact, did you ascribe a certain amount of that cost of the power line to the fact that some of the land would be taken out of production permanently?

A The costs that I have used for the mine-mouth alternative were prepared for the project by the various consultants involved: The Bechtel Power Corporation, Charles T. Main, Montana Power Company, engineers themselves. And costs for right of way have been included for the transmission lines. Now, whether those costs are appropriate in your mind or in my mind is probably going to give rise to two different opinions; but nevertheless, costs are included for acquisition of right of way, which are reflected in the project cost, which ultimately results in a cost to Portland General Electric, which I have evaluated.

Q How much of the cost that you put in, that you got from these experts, was allocated to condemnation actions and the damages that will have to be paid there?

A I do not have that information.

Q Do you know if any was?

A I do not know.

Q The applicants here and their various consultants have a figure that they pay per mile and per structure; do you know whether that's the figure that was used to determine the course of right of way; or do you know if there was a figure put in there for estimated condemnation damages?

A I don't know how those figures were prepared. If I prepare a cost of right-of-way estimate for a project as big as this myself, I include certain costs anticipated for litigation and condemnation, as history of these kinds of projects would indicate.

Q But you don't know whether there is any in here?

A No, sir, I do not.

Q Now, in other testimony before this Board there has been an indication that there has been inadequate research in order to determine the full damages that might result from electrostatic and electromagnetic fields created by EHV or high tension line; in other words, there has been some evidence that there may be some long run social difficulty here, corona loss, that sort of thing. I'm not asking you to agree with me whether there is or whether there isn't any such damage, but I'd like to know whether any element of social damage by reason of the size of the line has been included in your estimate of costs for the line charge?

A For social damage, specifically?

Q Well, I call it damage to society rather than to any particular individual.

A No, and I don't think there has been any cost to society or social damage, as you put it, for not having the line and not having the project to meet the demand of the customers either.

Q Please understand me, Mr. Woodley, I'm not suggesting in my conversations with you, maybe in other parts, but here I'm not suggesting that you not build a plant and get the power. We're talking about whether you're going to do it at minemouth or whether you're going to do it at the end of the rail line; do you see what I mean? So there's not going to be any loss to the consumer, as far as I'm concerned, in our discussion. I'm assuming that we're going to build a plant at one end or the other.

A But yet, the point I make is that we don't have those alternatives before us today. And if we --

Q What alternatives don't we have before us?

A We don't have the alternative of building at the load center or building it at the mine-mouth on the time frame that the project is needed; we don't have that alternative. So you would have to, if you were going to look at the load center alternative, the rail haul alternative, you would have to also assess the social damage of not having the plant when it is currently projected needed.

Q Well, you're not going to make a bootstraps argument here, are you, that since the time is late, we have to do it this way whether it's the cheapest or the best or not? In other words, you would recognize the right of the Board of Natural Resources to site this plant where it felt it should be best sited, based on the application, not based on the fact that it's now too late to do anything else; wouldn't you?

A Well, I think the question that we're facing is whether or not the plant ought to be built where it is presently planned to be built. And the choice as to whether it can be built somewhere else is not the issue; it's whether it can be built here or cannot be built here.

Q But, haven't you read the Montana Siting Act?

A No, I've not read the Montana Siting Act.

Q Oh, well the Montana Siting Act says that it's the best site. You know, we've got to find the best site to build this plant. I didn't happen to write the Act and it may be a rather stringent standard; but we have to so that it does the least amount of degradation to the environment. And with that sort of a test, I think the Board of Health might well find that the plant is needed, but could be built elsewhere.

MR. ROSS: I move to strike the gratuitous testimony of counsel.

MR. GRAYBILL: Well, I'd just like the witness to understand the siting act that he's testifying about here.

HEARING EXAMINER: Okay, well --

Q Let's keep on the problem at hand, Mr. Ross, and that is whether or not the potential damage from an EHV power line across this state, from corona loss, from electromagnetic and electrostatic effects, loss of radio and television on both sides of the line, danger of electrical problems at crossing points, all of those things; whether you've weighted that in your costs of transmitting the electricity from mine-mouth at Colstrip? What part of that -- have you put anything into your equation for those elements?

A I'm not intimately familiar with what is in that cost; but there are, again, most planning engineers, of which I am one, there are problems that come up with high voltage transmission lines that you've touched on a couple of them; the interference with radio and television reception for particular individuals along the proposed route, and generally these are overcome by providing some improvement for that particular affected individual to improve his reception to where it is acceptable to him; and this results in a cost to the project. So, again, it would be something that I would include on the basis of historic data for these kinds of lines and I would put the cost in. This might amount to a few dollars per mile, depending upon the population density through which your line is going, the proposed right of way. Generally that's the practice for system planning cost estimating; and, so, again, I'm not familiar with -- I did not do that work, so I do not know exactly what money would be in that estimate for that kind of impact; but I would include it if I were doing it.

Q But you don't know whether it was included here?

A I guess that's what I'm saying.

Q No, we've had a witness or two here who said that one of the great assets the state of Montana has is the beauty of its western mountain and valley area; and this witness said that the damage was not only to the land traversed, but to all the other land in that area, which really was not traversed but was within visibility or within a short driving distance of the power line. Now, without arguing with me whether this witness has a viable point or not, I'd like to know whether there's any element of cost in your cost to transmit the electricity from mine-mouth generation at Colstrip for the degradation, whatever it may be, to western Montana's -- to the asset in western Montana which we might call aesthetic beauty?

MR. ROSS: I'm going to object again; I think it's beyond the scope and it's repetitious. I think this witness has testified that he didn't do the actual calculations and isn't sure exactly, item by item, what is in those cost studies.

HEARINGS EXAMINER: The objection is overruled. All he's got to say is he doesn't know; he doesn't know whether it's in there or not. Or if he does know there's nothing in there for aesthetics, he can say there isn't.

A You're speaking of aesthetic impact, is that the question, relating to cost?

Q In western Montana. Maybe I ought to be careful here; I might want to run for public office. I better say in all Montana. Aesthetic loss to the state of Montana; is there anything in there for that?

A Again, my answer would be very similar to the one I gave for the impact on TV and radio receiption.

Q The short one was you don't know.

A I don't know what is in there and --

Q Alright, let's assume you don't know whether those other costs are in there. The fact of the matter is, you do know that all the costs which Portland General might have to pay out in coal dollars are in there; right?

A To the best of my knowledge, yes.

Q And really what you're saying, isn't it, didn't you really do this study to find out whether it would cost Portland more, not whether it would cost society more?

A I would like to think that Portland is a part of this society.

Q Surely, it is; but it isn't coexistent with society yet, is it? Can you answer that one with yes or no? In other words, honestly and candidly, didn't you prepare your studies, and I certainly grant that you're an expert and you've done well, I haven't seen them, but I grant you that, you sound like a very good expert to me; wouldn't you really grant that what you did was find out how much it was going to cost in dollars for Portland General rather than what it was going to cost society and in the future for health reasons and aesthetic reasons?

A I'm a strong believer in the economic system; and I believe that those costs for what it's going to cost future generations are represented, to the best of our knowledge at this point in time, in the various project cost estimates and projected O & M, or operating expenses, over the life of the project.

Q Okay, if you're a strong believer in the economic system, and you and Mr. Buckley would agree that that does and can control a situation --

A It's the best thing we've got going.

Q Then we really don't need the eminent domain laws, do we, what you've testified about, because actually the price will be reflected by the market, won't it? Have you considered here that you have to use eminent domain to move that power from Colstrip through Montana, or is your calculation without reference to eminent domain?

A Well, I've already answered that question as to how much is in there for having to incur costs of eminent domain proceedings is unknown to me; but I think it's accepted practice to have those kinds of estimates in there.

Q But, Mr. Woodley, you said a few minutes ago, and I agree with you, that coal slurry lines are probably -- it's useless or impractical to talk about them because until they have the right of eminent domain, you can't build them; don't you and I agree on that?

A Yes.

Q Now, you also are depending, I believe, because you've sited the fact that a North Dakota utility executive to whom you talked, pointed out that he had to change and go unit train because of an eminent domain problem in the state of North Dakota; right?

A Well, he didn't change and go to that. That was another factor that was on the side of the economic argument that he had already concluded that existed. I think I understand the thrust of your question; I have no -- I don't disagree with that. There are economic considerations, there are legal considerations and other regulatory and non-economic constraints within which the planner has to operate; and these things have to be considered, yes.

Q You have made your estimates here based on the fact that you intended that eminent domain could be used to see to it that it was possible to transmit electricity by transmission line from Colstrip to the west coast; right? You've assumed that eminent domain would be available, haven't you?

A Well, I don't thing -- no. No, I haven't made any such assumption at all. It's inherent in the powers of eminent domain granted to electric utilities for transmission rights, access to transmission rights, that transmission lines can be built where a need is shown to exist; sure. Yes, I have to make that assumption. If Montana were to pass a law that no new transmission lines could be built, certainly the project would not be viable, even though economically it's attractive.

Q Well, no, Montana shouldn't pass that kind of a law; but if they would just take --

A Call it Idaho; call it Oregon; call it whichever, yes.

Q Let me get my point out and then you can argue with me. I certainly would disagree with Montana or any state making a law that you can't build transmission lines; but they might make a law that you have to buy your way when you build transmission lines, just like you do with coal slurry lines; and in that case, do you know that your economic costs would be the same as you have calculated?

A The very last thing that our company wants to get involved in is eminent domain proceedings, and we will attempt with all diligence to work out agreements with those property owners that must be trespassed against or impacted by the project to -- short of enforcing an eminent domain proceeding.

Q Certainly, certainly. I can appreciate your company's position and I think that's the same position the Montana Power takes. Nevertheless, there are four condemnations on the very first 110 miles of this line. The thrust of my question is this, you're talking about having covered all the costs, and in doing so you're assuming eminent domain, which forces people to take a result that is not based on the market mechanism, which you claim you're in favor of; isn't that true?

A I'm not sure what you said I agreed to. It --

Q You've got to listen carefully, Mr. Woodley.

A Whether the cost incurred by eminent domain proceedings is included in the first 110 miles, I don't know.

Q Let's get back and try to settle this because Mr. Ross is about to have a catfit here. Mr. Woodley, you and I agreed a minute ago that you and Mr. Buckley and Adam Smith all agree that the price mechanism is the way to regulate society; right?

And you ascribed all of my social and cultural or aesthetic costs and said they were all covered by the price mechanism, right? Your assumption is that people will have to pay enough so that the aesthetic cost is eventually covered, right?

A I'd like to think that those costs can't be represented as an economic cost, yes.

Q But to do that, we'd have to have a free market, wouldn't we?

A Yes, that's right. But we don't have, and you and I agree on that.

Q Don't you and I agree that eminent domain is really not a free market?

A That's right, it's a distortion of it, just like old oil versus new oil. There is a distortion.

Q You bet. So the fact of the matter is that in doing your studies, since you presume eminent domain, and are not sure whether these social and cultural costs are in there, you really have only discussed and only assured yourself that the cost in dollars to Pacific General Electric Company are the ones that are going to be covered and cheaper; not that the total cost to society of that project or the total market value cost of that project is covered; isn't that what you've done?

A Yes, I think that's what I've done.

Q That's really all I'm trying to say, is that that's what you covered. Now, if that's what you covered up on page 4, line 16, when you generalize from your studies to the Pacific Northwest situation and all the other power lines, you surely would agree with me that that's all you've done there too.

You've talked about, it will be cheaper to the power companies involved in terms of coal dollars, but that you haven't calculated the total social costs; right?

A The power company and ultimately its consumers, yes.

Q You see, the problem that some of the ranchers and farmers have here, Mr. Woodley, is that we have a right of way between Colstrip and Boardman or Colstrip and Centralia or Colstrip and the West Coast; the right of way is owned by several railroad companies, and it's 50 feet or 60 feet wide, and it's perfectly capable of moving coal that can be turned into energy. And they don't understand how if you've already got one way, you've got to take 300 more feet and add that to the valley's detrimental use, and that's the issue that these farmers and ranchers are raising; do you understand that is the issue?

MR. ROSS: I move to strike all the gratuitous testimony of counsel.

HEARINGS EXAMINER: It's in the record anyway. It's overruled.

Q Do you understand that that's the issue they're making?

A I can understand that issue, and I can also understand why those farmers and ranchers are concerned about having adequate supplies of diesel fuel to power their tractors and that one unit train trip from Colstrip, or from Gillette to Boardman is going to consume 35,000 gallons of diesel fuel, which could otherwise be used to power tractors and combines through their fields. And I think if you want to talk in general terms and get outside the field of hard economics, that one must consider all of these far reaching national goals and priorities. And right now our national goal and priority is to minimize our dependence on imported crude oil and to maximize the utilization of our own indigenous raw energy resources such as uranium, hydroelectric and coal.

Q And you would also agree with me, that the electrical energy field is tight and that we need all the electrical energy we can get; wouldn't you? There's no trap there; you'd agree with that, wouldn't you, Mr. Woodley?

A I don't know if I would say we will need all we can get; the way things are going right now, it appears that we are going to need all we can get; but hopefully this snare won't continue forever and we'll be able to free some of the resource laws around to be able to meet the projected needs.

Q Since you're a utility executive, I trust you are aware that there will be line losses, significant line losses, on a line as long as the Colstrip to Hot Springs 500 kV line; you're familiar with the line loss problem, aren't you?

A I'm very familiar with the line loss problem.

Q And the line loss problems don't end at Hot Springs, do they; the line loss problems continue on from Hot Springs over the BPA system and into Portland, don't they?

A But they're considerably different nature when once you are on a disputed grid. In fact, you can wind up -- On this matter of line losses, once the radial, even that's not a pure radial connection, it's made with an existing grid; one can actually result in a reduction of losses by what is known by those of us in the industry who are familiar with it as the displacement of power so that actually where power is flowing one direction, when you change the resource load balance, you can wind up with power flowing, either not flowing or flowing in the opposite direction and change the loss picture considerably. So it's not always intuitive to those who are informed on this subject whether a particular project is going to result in significant increases in losses or perhaps net reduction in losses.

Q Now, Mr. Woodley, you've certainly convinced me you understand the problem, and I've heard the engineers testify to that effect.

A Well, good.

Q And in this hearing engineers have testified about that problem and have testified somewhere in the record, if we took the time to find it, we could find exhibits that show the amount of line loss involved by moving the power west in the manner you're talking about, by transmission line; and it is a significant factor, I don't deny but what it is. Have you compared the line losses with the diesel fuel costs?

A Well, you can't just compare the line losses with diesel fuel costs.

Q Well, a moment ago you were comparing them; I just asked you a simple question; have you done that?

A I didn't compare diesel fuel costs with anything.

Q You haven't compared them with the line loss?

A I've compared them with the line losses only --

Q Excuse me, my question wasn't finely honed enough. What I want to know is, have you compared the line losses with the increases in diesel costs due to the oil shortage; that's the issue you raised a moment ago?

A I have compared line losses, which can be regarded as an operating cost for the transmission alternative, with all of the operating costs included with the rail haul alternative, of which diesel fuel is only one. And if you'd like a breakdown on that, I could give you the amount of diesel fuel, the amount of train crew labor, the amount of maintenance on locomotives and cabooses and cars, all of which comprise the operating cost.

Q It really won't be necessary for you to give me all of that. I'm familiar with the fact that you did do the studies and that they're thorough.

A Thank you.

Q What I'm trying to find out is, you raised the issue of the use of expensive oil for the trains, and I wondered if you compared that with the expensive line losses due to transmission of electricity over great distances?

A I think you missed my point. It was not the comparison of expensive diesel fuel; it was the comparison of irreplaceable diesel fuel with transmission impact. We were not talking about economics.

Q But actually the element that you're talking about -- I won't get into this, that's ridiculous to argue about.

A I agree.

Q On line 19 and 20 on page 4 you say that the difference in cost, and you're talking about the difference between rail and transmission line, is primary based upon the fact that rail costs will escalate rapidly; is this a subjective judgment on your part, or have you empirical evidence that rail charges will escalate rapidly in the future?

A In Mr. Shenker's cross-examination of me earlier, I talked about the AAR index and studies of that that we have made; and I think if you look at that, or if you wish, I will repeat it, you'll find that it's not a subjective estimate. It is, indeed, as objective as we can make at this point in time.

Q Nevertheless, it's an estimate of what's going to happen to such things as labor costs in the future, isn't it?

A Labor is only one small part of the AAR index, which is keyed to all costs associated with railroading.

Q Sure. Capital is another major one, right?

A Taxes, fuel, railroad ties, railroad track, on and on and on, many, many categories.

Q If the power companies here build the transmission line, they are going to have to borrow the money and do it now and that cost of capital is going to be embedded; isn't it?

A Of course.

Q Whereas, really, we don't know what's going to happen 10 years from now, in terms of rail price; do we?

A Well, I --

Q We can estimate, but we really don't know, do we?

A Of course we don't know; we only know what is historic fact. We don't know; what is speculated in the future is generally a planning judgment that is made by various economists, engineers and others who are knowledgeable.

Q But we do know the embedded costs of the present plant a great deal more than operating costs of a future operation?

A That's right, the uncertainty is much less with a high front end investment.

Q What price did you put on the transmission line system which you compared to the coal haul?

A Do you want that in dollars per kilowatt or hundreds of millions of dollars, or how would you like it?

Q I would probably understand it better in hundreds of millions of dollars, or if you just want to tell me where you got the facts, I might recognize your source.

A Alright, the cost of the transmission is that transmission cost reported in the most current Montana Power Company estimate, who are the project sponsors.

Q Is that $215 or so million?

A It's whatever it is.

Q You don't remember what it is?

A Not without going back and looking. I think -- let's see --

Q The reason I asked that, the cost has continued to escalate since the beginning of the planning and even through the hearing; and I just wondered whether you were using old figures?

A Unfortunately, if we're using old figures on that, we're also using old figures on the cost of railroad cars.

Q Surely you wouldn't do that, Mr. Woodley.

A It's somewhere in the neighborhood of, you said $155 million?

Q No, I didn't.

A What did you say?

Q Let's have your answer first and test it by the record.

A My answer is it's whatever the latest cost estimate is from Montana Power Company.

Q What's the figure you just computed?

A It's gone.

Q Do you remember it?

A Do I remember it?

Q Yes.

A Yes, I remember it.

Q Would you please state it for the record?

A The number that I just computed was 1.61 E to the eighth.

Q And what is that?

A That would be $161 million.

Q Well, actually that would obviously be about $50 million cheaper than the latest estimates. Now, I don't know where you got your figures, but there was a $202 million estimate, which we used in one of our exhibits and we had cross-examination on the other day, and we all agreed that that estimate was, I think, $14 or $16 million short. $218 or $220 million is the present cost of transmission line.

A Okay, that's what it is, then that's what I have used. Because as project participant, we receive the latest information when it becomes available, and I receive that directly from our senior vice-president, and we are continually updating our cost estimates.

Q When did you do your study?

A When did I do which study?

Q Well, the last one you depend on?

A I probably did it in February; January or February. I believe the last time I was up here, Mr. Shenker and I talked about the January '76 study results.

Q So to the best of your knowledge, you use the figure somewhere around $215 to $220 million for the transmission line?

A That's to the best of your knowledge, not to the best of my knowledge. I say we've used the latest estimate from the project; and I cannot tell you any closer than $160 million what it is.

Q You know, Mr. Woodley, I appreciate what you're trying to do to protect yourself; but it is my duty to probe you, and I'm not at all interested in what I think. I've given you honestly and candidly the latest estimate I have; but I am very interested in what you think and I'm even interested in the fact that you don't know. So I want to ask you point blank what the figure is you used for your transmission line cost the last time you estimated the difference and what you defend upon?

MR. ROSS: Objection. He's asked this same question about three or four different times and the witness has answered the best that he can.

HEARINGS EXAMINER: You can answer it again, if it's the same, or if there's a different answer that you have, or that you don't know at this time.

WITNESS: I can look it up.

HEARINGS EXAMINER: No, what you know right now?

WITNESS: I don't know.

HEARINGS EXAMINER: That's what I understand.

Q Do you have the papers with you to look it up?

A Yes.

Q Okay, look it up.

HEARINGS EXAMINER: Let me ask a question. Is this what you testified to when you were here before, these figures?

WITNESS: On the project -- the Colstrip costs, yes.

HEARINGS EXAMINER: Not on the transmission line though?

WITNESS: We didn't get into the transmission system; that's one component of the project. I didn't talk about that specifically.

HEARINGS EXAMINER: If you've got your cost figure, why don't you look it up, if it's handy there.

(Pause to comply.)

A The number that I have used is $214,620,000.00.

Q And what is the figure used for the plant, while you're there?

A $776,662,000.00.

Q Okay, and what rate of interest did you use for the capital costs?

A The levelized annual revenue requirement, which is what I use in the evaluation, is 13 percent, the LARR.

MR. GRAYBILL: That's all I have. Thank you.

WITNESS: You're welcome.

HEARINGS EXAMINER: Mr. Ross?

MR. ROSS: May we have about 5 minutes?

MR. GRAYBILL: Wait a minute, Mr. Ross. I want to ask you if I can look at the notes. May I look at the notes? During the recess I'll just look at the notes.

MR. PETERSON: Yes.

HEARINGS EXAMINER: Five minute recess.

(Brief recess.)

HEARINGS EXAMINER: Okay, now we're on redirect. Mr. Ross.

Rebuttal, Redirect, by Applicants,

By Mr. Ross:

Q Mr. Woodley, in cross-examination by Mr. Shenker, you discussed the use of turbines and you gave us some reasons why turbines were not a good alternative to baseload generation; are there any other reasons that you didn't mention before that you wish to mention now?

A The only thing that we did not touch upon was kind of an embarrassing spot for me. I don't really like to talk about it all that much; but that has to do with the very severe permit restrictions that we've run into in our existing plants. It's been a very painful experience for me and one that I'd rather avoid talking about completely; but it is, nevertheless, a very real limitation in that we have several regulatory bodies that sit in jurisdiction over the plant operation, and this has severely impacted our ability to consider those plants as available when they will be needed. These restrictions take the form of limitation on hours of use, limitations on the sulfur content of the fuel that result in, you might say, discriminatory fuel requirements whereby other users are not faced with as severe restrictions and, therefore, the market does not generally respond to our needs when we hit them with these severe fuel sulfur limits. All of these take the form of regulatory constraints. In the case of all three of our combustion turbine plants, we have a department of environmental quality regulating the plant use. In the case of one of our plants, we have the City of Portland, in addition to the department of environmental quality. These -- two of these plants are presently involved in some very serious regulatory problems; one of which has gone into legal action, and the other one, Arberton plant, seems to be headed that way. So that's the only additional reason that I could add to what I stated before about why the use of combustion turbines for baseload energy resources -- as baseload energy resources -- is not appropriate.

Q You also discussed Northern States Power with Mr. Shenker; and does the fact of existence of transmission or the lack of transmission, could that be a consideration in comparing Northern States' power situation with the applicants' situation here?

A Yes, it should be.

Q Can you tell us why it should be a consideration?

A The existence of a large amount of high voltage transmission in the Pacific Northwest, in both the Bonneville Power Administration grid and the investor-owned utility systems, substantially reduces the cost of transmission from a remote mine-mouth generating facility over that that you would run into transmitting energy by wire into the mid-west from the Rocky Mountain states, because east from the Rocky Mountain states there is very little, indeed, no 500 kV transmission that would be the voltage required for this kind of a project. So you lose all of the benefits of underlying transmission grid to the transmission required to your project. Those benefits result to not only the project, but also to the system that is the underlying system. There's a mutual strengthening of the transmission; and so I guess that that aspect would be one other consideration that would make inappropriate a comparison between mine-mouth and rail haul moving east from the Rocky Mountain states versus a mine-mouth rail haul moving west. That would be in addition to the factors that I already covered in my statement, which is the rail miles and mountain ranges and those factors.

MR. ROSS: No further questions.

MR. SHENKER: A couple of housekeeping matters, Mr. Davis. DNR Exhibit 44, previously marked for identification for illustrative purposes, the pamphlet from Portland General Electric Company to which the witness referred earlier; we offer it for illustrative purposes.

HEARINGS EXAMINER: Mr. Ross, DNR say No. 44, the pamphlet offered for illustrative purposes; do you have any objections?

MR. ROSS: No.

HEARINGS EXAMINER: It's admitted.

Rebuttal, Re-cross, by Department of Natural Resources and Conservation
By Mr. Shenker:

Q DNRC Exhibit 45 has been marked for identification, Mr. Woodley; this is a copy of the material that you were looking at from your notes for the purpose of making the calculations which you supplied for Mr. Graybill; is it not?

A That appears to be the case. I guess it's a copy of what I gave Mr. Graybill to look at while I stepped in the other room.

Q Yes.

A You were indeed very rapid in your footwork, Mr. Shenker.

Q Mr. MacIntyre is the one who is swift of foot. That's it, isn't it?

A Yes, in fact the copy you gave me, I think, is my copy and you've given me a copy of my copy.

Q Well, which ever. DNRC Exhibit No. 45 is, in fact, the notes from which you were making the calculations you gave to Mr. Graybill?

A That's correct.

Q Just a couple of identifying questions from that, Mr. Woodley, so that we understand. Down in the left-hand margin you have such things as plant costs, dollars per kilowatt; would that be the cost of the entire plant in dollars per kilowatt; not transmission, but the generating station itself?

A You lost me; I'm not sure where you are on the exhibit.

Q Fourth line down, plant cost, dollars per kilowatt.

A Yes.

Q Is that the entire generating station cost, right?

A Exclusive of transmission.

Q Right. But it's not Portland General Electric Company's share; it's the entire cost?

A Well, it's in dollars per kilowatt, so you multiply it times

Portland General Electric Company's kilowatts, and you will get what the total share would be, yes.

Q Just above that it says total project costs, and that is for the entire project, not Portland General Electric's interest?

A That's correct, the $990,000.000.00 is the total project cost.

Q I think we know what all the rest of those terms are because they've been often referred to in the court in these proceedings. One items I don't recognize is loss multiplier in this context. Can you define that one for us, please?

A The loss multiplier is the number that I am applying to the annual charge in dollars per kilowatt; and what that represents is that -- well, in the examples that are compared for -- The Boardman coal-fired is 1.04; what that says is that I would have to build a plant 4 percent larger at Boardman than I would if I were building it at Troutdale, that's a 230 kV bus where we take delivery from the Bonneville system. It's one point where we take delivery. And on the Colstrip column where the multiplier is 1.15, that says that the plant would have to be 15 percent larger at Colstrip than if I were building it right at the Troutdale bus. So what this does is it results in the demand cost of losses; losses are costed on them both, demand cost and energy cost. This loss multiplier takes into account the demand cost of losses. It's an approximation.

Q Fine.

MR. SHENKER: We'll offer DNRC Exhibit No. 45.

MR. ROSS: No objection.

HEARINGS EXAMINER: I will admit it.

Q Now, you described to Mr. Ross, Mr. Woodley, what you call painful testimony from your standpoint; what was painful about the testimony?

A I guess it's just like the doctor, when a patient dies; I've never been a doctor, but I imagine he has some inner searchings and agonies. And in this case being intimately involved with the site selection and the equipment selection for our gas turbine power plants and designing them to do a job and then to find out that after the passage of time, the powers that be, the regulators, the politicians and all of the people that get in the act, feel that it doesn't -- that you can't do the job there that you thought that it could do, results in those inner searchings where you ask, "where did I go wrong," "what did I overlook," "what did my education fail to provide me," what has my experience caused me to overlook"; and it's that inner searching that gets somewhat painful and you wish you didn't have to spend the time doing that and could spend your time doing more productive things; like worrying about the problems tomorrow.

Q You don't strike me as a very passive fellow, Mr. Woodley; wouldn't you bend every effort possible to persuade the powers that be that there were no defects in your education, you hadn't gone wrong, and they really shouldn't take the adverse steps that you described as so painful?

A That's an interesting observation on your part, and I will take it as a compliment.

Q I have correctly described your motivation, I take it?

A I think that's true.

Q Now then, you described transmission benefits east and west; the transmission system, as I understand it that other witnesses have described in this proceeding, east from Montana is very sketchy; isn't that true?

A The transmission east from -- I'm going to give you your copy back and keep mine -- it's a better copy. I'm going --

HEARINGS EXAMINER: So there.

MR. SHENKER: Listen, Davis, don't quarrel with him.

A The transmission eastbound from Colstrip is indeed very sketchy, if you mean by sketchy that none exists.

Q That's not a very good thing in terms of general regional energy plans, is it?

A Well, it has done the job quite well so far and it's been very adequate in that we have been able to link our resources with our loads and have produced an electrical system that is second to none in the world, as far as reliability. So I think it's done very well; but what we are seeing now is the effects of a very dynamic and changing situation and we're attempting to adjust our planning to anticipate the future load growth and the future resource availability to take that into account. So I think up to the present point we've done a very good job in the utility industry.

Q Not good enough that you've been able to get by without proposing two 500 kV lines for transmitting power from Colstrip?

A But I don't think there's anyone in the industry that would quarrel that that is a very good way for linking the loads that exist in the Pacific Northwest to the vast coal resources that exist in eastern Montana.

Q The fact is, we have testimony in this proceeding of those who do quarrel with that, Mr. Woodley.

A I said in the industry.

Q Yes, folks that happen to be in the industry sometimes, too; but I suppose you don't know that as a fact. So let me ask you instead, Mr. Woodley; you will concede, will you not, that there wasn't sufficient transmission west from Colstrip to permit the delivery of 1400 megawatts without providing more transmission; that's true, isn't it?

A Certainly.

Q And you think that's a good thing, don't you, to deliver more power over transmission lines west?

A Do you mean, does it make me feel warm inside?

Q As an energy planner, it's a good idea?

A Surely it's a good idea, it's a viable alternative.

Q Now, should we not, as energy planners, you would favor the building of transmission lines east from Montana?

A There's got to be a trap in that question.

Q Try it and see.

A As an energy -- as an electric utility system planner, I have talked with Mr. Forrest, who is directly concerned about transmitting energy from Montana eastward; and he, indeed, tells me that this is an alternative that he is considering, and I would agree, if I were in his position, and were concerned about meeting projected demands in the midwest as he is in Minneapolis. I would consider it a good idea; perhaps not the best, but it would be a good idea.

Q Well, let me put the question to you this way, Mr. Woodley; if you were the energy planner in Montana, a czar unto yourself, and you were given the mandate: Plan for energy development from the perspective of Montana, would you look only west?

A By planning for the energy development in Montana, do you mean to meet just the needs of Montanans or do you mean to utilize the resources for needs beyond Montana?

Q I should think the needs beyond Montana should be included because, although we tell jokes about North Dakotans, they're nice people really. We want to think about them and we tell about Wyoming and we tell about Colorado and Utah, South Dakota and Nebraska, and maybe up in Canada, and over to Idaho, Oregon and Washington; but knowing where we sit geographically, as the energy planning czar of Montana, would you look only west?

A No, of course not. The reason I wanted you to clarify that was to make sure if you're looking at Montana, if I were such a czar, looking at Montana's energy resources and how they are going to become a part of what the country is going to have to utilize and what we are going to need, yes, you'd have to look east, you'd have to look west, you'd have to look all directions.

MR. SHENKER: Thank you. Nothing further.

MR. ROSS: Nothing further.

HEARINGS EXAMINER: Very well, sir; you're excused.

(WITNESS EXCUSED.)

HEARINGS EXAMINER: Mr. Peterson, did you want to take this other witness this evening?

MR. PETERSON: Alright.

FLOYD KEMPH, called as a rebuttal witness by the Applicants, having been first duly sworn upon his oath both as to his written testimony and the oral testimony to follow, was examined and testified as follows:

(THE WRITTEN DIRECT TESTIMONY OF FLOYD KEMPH WAS DIRECTED TO BE INSERTED AT THIS POINT.)

STATEMENT OF TESTIMONY OF
FLOYD KEMPH

My name is Floyd Kemph. I am President of, and operate Kemph Land & Livestock Company, located nine miles Southeast of Custer, Montana. My address is Custer, Montana. Our company was started by my father in 1920. Our operation is a combination of cattle, dry land farming and irrigated farming for feed and cash crop. We have 640 acres of circle irrigation and are planning to irrigate 300 more acres. Our irrigation equipment alone required 478,540 kilowatt hours last season and will increase considerably. We run about 800 head of cattle during reasonable market periods.

I am here today to express my feelings and offer my opinion of Colstrip Plants 3 and 4, and the transmission lines necessary to distribute their power. I am speaking on behalf of myself, not as a member or affiliate of any organized group.

First, I want to relate the courtesies and consideration shown by representatives of the power company. We were first approached in May of 1973 by men from the engineering firm that were designing the transmission line. They requested permission to enter our property to place what they called "targets" for aerial photography, and they explained that the photographs would cover five miles North and South, from which they would locate the proposed line. In August 1973, one of these men returned with a photograph of my ranch showing the line they were proposing. I pointed out a field where we are planning additional circle irrigation that was directly under their line. They asked me to show them where I would prefer having the line. Within several weeks they had re-routed and re-engineered their line to miss the areas I thought we would be irrigating. When they asked for a permit for ground survey, it was willingly given because of their consideration of my feelings and my property.

When a negotiator appeared to ask for an easement, their offer was fair and clauses were prepared and included to insure adequate damage payments would be made so I gave them an easement. Then the state moved the route and I signed a second easement for the new location. The company did not require trading of easements.

Eleven miles of construction road was build across my ranch and the adjoining ranch to the West. The road was bulldozed and graded only where necessary to permit passage of steel hauling trucks and the large crane that was to erect the towers. Considerable damage was done to topsoil and range grass, but from past experience with the company I expect to be treated fairly in the payment of damages.

The contractor constructing the Colstrip line used my ranch road when possible, and each time they requested permission. They graded about eight miles of ranch road four or five times during this period to keep them in good repair for us. They also constructed a road about one and a half miles long with cuts, fills and ditching of the same quality as a county road to an area of the ranch that I wanted to feed cattle, and they have offered to haul a D-8 Cat on their low-boy from Billings for me.

I am speaking to you with a position of experience in farming and ranching lands crossed by electric transmission lines. Our property is crossed North and South by the Bureau of

Reclamation high voltage steel tower line from Yellowtail Dam, and we have more than six miles of the Colstrip line crossing East to West. We have been farming around towers for over ten years - they are inconvenient - but I can say nothing worse. My cattle have been grazing around, under and through these towers as if they weren't there - with no ill effects. Myself and my neighbor have circle irrigation equipment passing directly under the Bureau line.

I own and fly my own plane in the overseeing of my ranch, and for pleasure. The approach to my landing strip is directly over the Bureau line and the strip is about 1/2 mile from that line. I do not anticipate problems created by the Colstrip lines because I expect to continue flying the ranch in the same observant manner that I have always operated my plane.

I don't appreciate transmission lines crossing my lands any more than those who have testified before me. I can look out the living room window of my ranch home and see thirty or more towers which have already been erected on my land for the Colstrip line - this will increase to sixty when you approve Plants 3 and 4, but, I am keenly aware of my present power needs and of the future power needs of our ranch and of my neighbors who are planning additional irrigation systems.

For those of you who are so strongly opposed to helping our metropolitan neighbors to the West, I would like to remind you that electricity provides them with jobs. We need their jobs to process and ship our crops - and to provide them with the money to buy our beef, wheat and other crops. I think we can also afford to be inconvenienced a little to help our 350,000 native sons and daughters, who for the most part, have had to leave Montana to seek employment elsewhere because they were not fortunate enough to be born to families with ranching operations large enough to support them. I find it interesting to note that over 200,000 of these Montanans are living in the four western states where this power may be going.

I don't want Colstrip Plants 3 and 4 or their transmission lines; however, for many of the reasons presented I believe they are needed.

HEARINGS EXAMINER: Mr. Shenker.

EXAMINATION OF MR. KEMPH

Rebuttal, Cross - by Department of Natural Resources and Conservation

By Mr. Shenker:

Q Mr. Kemph, I only have a few questions for you, sir. I understand that you live in Custer, Montana?

A Yes.

Q How did you get out here today?

A By company plane, Montana Power.

Q You've been sitting here for a substantial part of the day with another gentleman who I don't know who wears a distinguished green blazer with a white tie; he's with Universal Field Service, isn't he?

A Yes, he is.

Q What's his name?

A Mr. Dale Heston.

Q Mr. Dale Heston. How do you happen to be here with him today, sir?

A Because I was asked by him.

Q Do you know what interests he represents?

A Yes.

Q Would you tell us, please?

A I represent myself.

Q No, no, no, no, no; Mr. Heston, what interests does he represent?

A He represents -- he's a right-of-way man for Universal Field Service, who works for Montana Power, the way I understand it.

Q Universal Field Service has the contract to go about for lining up the area where transmission lines might go; right?

A Yes.

Q As I read you statement, Mr. Kemph, it appears to be one of general harmony and calmity, which you point out; you get along pretty well with the folks from the Montana Power Company, and I assume you'd include in that the Universal Field Service program; right?

A Yes.

Q Now, you don't want the Board of Natural Resources and Conservation to believe, do you, Mr. Kemph, that all the folks in your part of Montana have had the same experiences as you?

A Well, from what I hear, everybody hasn't had the same experiences, no.

Q You know, for example, that Dale Heston himself has threatened landowners with condemnation if they didn't buckle in; you know that, don't you?

A Yes.

Q In fact, previously in this proceeding it was marked for identification an exhibit from the Northern Plains Resource Council, which was Exhibit No. 5, a letter that Mr. Heston had written on behalf of Universal Field Services; had you, my any chance, ever seen that letter before?

A Seen what?

Q Let me show you a copy of it, Mr. Kemph. (Takes exhibit to witness.) I'm handing you what has been marked for identification as the Northern Plains Resource Council Exhibit No. 5, a letter of November 14, 1973 from Dale Heston; have you ever seen that before?

A No.

Q Well, without knowing the contents of that letter, sir, do you know that, in fact, the Universal Field Service folks, on behalf of the Montana Power Company, have threatened landowners there with condemnation?

A Well, yes, I'm aware that there has been some condemnation; yes.

Q And threats for that purpose?

A No, I'm not aware of the threats.

Q Do you know Mrs. Carlyle?

A No.

Q Has Mr. Heston told you about some of the difficulties he has had with some of the folks in the area?

A All I know is he said there is only about 4 people that are up for condemnation; other than that, I don't really know who they are.

Q Has he told you about some of his negotiations with some of the other folks?

A No, not really, he didn't.

MR. SHENKER: I don't have any further questions for you, Mr. Kemph. Thank you very much, sir.

HEARINGS EXAMINER: Mr. Peterson?

MR. PETERSON: I have no questions for Mr. Kemph.

HEARINGS EXAMINER: Very well, sir. We're sorry we kept you waiting all day; and you're excused.

(WITNESS EXCUSED.)

HEARINGS EXAMINER: We will recess to 9:00 tomorrow morning.

Recess: 6:30 P.M.